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THE FEDERAL MEAT-INSPECTION SERVICE.

BY

A. D. MELVIN, D. V. S.,  
*Chief of the Bureau of Animal Industry.*

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## THE FEDERAL MEAT-INSPECTION SERVICE.

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### THE IMPORTANCE OF MEAT AS A FOOD.

Meat forms a larger part of the food of the people of this country than is the case with any other country except Australia. Two recent estimates in this Department <sup>a</sup> have placed the total consumption of meat (in terms of dressed weight) in the United States for the last census year (1900) at 13,611,703,000 pounds and 14,116,886,000 pounds, respectively. The first of these does not include lard, while the other does. These estimates represent a per capita consumption of 179 pounds in the one case and 186 pounds in the other. It is calculated that meat constitutes about 30 per cent of our total nutritive material and costs about 30 per cent of the total.

### THE OBJECT OF MEAT INSPECTION.

Meat animals are subject to many diseases which impair or destroy the wholesomeness of their meat as human food, but the presence or the effects of disease are not always discernible in the dressed carcass. A piece of meat may carry the germs of a dangerous disease without giving any indication of this fact to the consumer. To detect disease there should be an expert inspection at the time of slaughter.

To protect the people at a point where they are unable to protect themselves is, generally speaking, the object of meat inspection. Diseased meat is the direct cause of disease in those who eat it. The consumer, being himself unable to determine whether or not the meat he buys is diseased, demands that he be protected by the Government from the cupidity or ignorance, or both, of those from whom he buys.

Let us consider, then, the importance of maintaining over this large and expensive portion of the food of the people—a portion that is subject to diseases that the people themselves can not discover—a constant vigilance by men able from long study and training to detect such diseases where the layman sees nothing unusual.

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<sup>a</sup> Twenty-second Annual Report, Bureau of Animal Industry (1905), page 283, and Bulletin 55, Bureau of Statistics.

Since before the time of Moses the necessity of an official meat inspection has been recognized. Without going into the history of enactments by tribes, by municipalities, States, and national governments, it may be said that meat-inspection legislation has more or less kept abreast of increasing knowledge, and that, although Federal legislation in this country has not at all times kept even pace with science, the present law is as advanced a measure as the medical profession and sanitarians demand, and is, perhaps, the most stringent and far-reaching of existing laws on the subject.

#### DEVELOPMENT OF THE PACKING INDUSTRY.

Meat inspection in the United States falls naturally into three periods: (1) From the opening of the Union Stock Yards in Chicago in 1865 to the year 1890, when the first Federal meat-inspection law was passed; (2) from the latter year until the passage of the law of 1906, and (3) from then until the present time.

By the year 1851 the packing industry had become firmly established in Chicago, and it grew steadily until in 1865 the several railroad companies centering in Chicago and some of the managers of the small stock yards agreed to combine for the building of the Union Stock Yards, which were opened on Christmas Day of that year. Meat packing had by that time also become an important part of the business of Kansas City, St. Louis, Omaha, St. Joseph, and Cincinnati. An idea of the growth of the industry may be gathered from the increase in the number of cattle received in Chicago. From 1851 until the building of the Union Stock Yards the total number of cattle received in Chicago was 1,691,410; of these 566,379 went to the packing houses, of which number 291,035 were consumed in the city. In the succeeding twenty years the number of cattle received was 20,024,774, of which 7,000,000 were slaughtered in Chicago. In 1906 the number of cattle received was 3,329,250, of which nearly 2,000,000 were slaughtered.

With the establishment of the Union Stock Yards meat packing was reduced more to a system, and it is recorded that the city health authorities instituted an inspection of the packing houses, an inspector being stationed at each of the two gates through which animals passed from the railroad on their way to the stock pens. These health officers were "practical butchers whose experience enabled them readily to detect any cattle or hogs that might be suffering from disease or were not fit for human food."

The first statistics of cattle inspection were compiled in 1881, when of nearly 2,000,000 cattle inspected for slaughter in Chicago 515 were found to be diseased.

## SOME EARLY STATEMENTS SHOWING NECESSITY FOR INSPECTION.

In 1870 United States Commissioner of Agriculture Horace Capron saw the danger that menaced the public from eating unwholesome meats, for he said, in urging the establishment of a division of veterinary surgery in the Department of Agriculture, "The value of stock lost annually from disease is enormous and threatens not only to decimate our animals but to expose the human family to disease from the consumption of unwholesome meats." Some years later Commissioner William G. Le Duc, in commenting on the prevalence of hog cholera or swine plague, said that while it had not been shown that the disease could be communicated to man, at least in a fatal type, no diseased animal was fit for food. It was a notorious fact, he said, that many entire herds of swine were slaughtered as soon as the disease was discovered to have made its appearance among them and that their meat was placed on the market for sale and ultimate consumption.

## EARLY MUNICIPAL INSPECTION AT CHICAGO.

According to a report by Mr. Edward W. Perry, special agent of the Bureau of Animal Industry, published in the First Annual Report of the Bureau (1884), a number of articles appeared in the Chicago newspapers in September, 1882, declaring that numbers of diseased animals were taken from the stock yards and slaughtered for food for human beings. The articles were very graphic in their description of scenes in the slaughterhouses and stock yards and were copied widely in the Eastern States, as well as in Europe. Although it was explicitly stated that great care was used by canners and by shippers of dressed beef to prevent the slaughter for their use of animals unfit for food, the effect of those articles was damaging to the interests mentioned. The principal packers and shippers of beef at once exerted themselves to assist the city health authorities of Chicago in their efforts to prevent the sale of any animal suffering from disease or from injuries that made the flesh unfit to eat. The department of health had authority for this purpose over the entire area within a line 1 mile outside of the limits of the city. An inspector was stationed at each slaughterhouse, and one was constantly on duty at the stock yards during the hours when the gates of the yards were open for the passage of stock. The officers scrutinized the animals offered for sale, especially those destined to be slaughtered in Chicago. If an animal exhibited indications of a disease making the flesh unsuitable for food, it was ordered sent directly to an establishment where the carcass might be converted into fertilizer. Employees of the canning companies and of shippers of dressed beef

reported to their principals or the inspectors the presence in the markets of any diseased animal, and condemnation quickly followed.

Inspectors also were stationed at the wholesale markets to examine the meats offered for sale. When the meat was condemned, kerosene was poured over it.

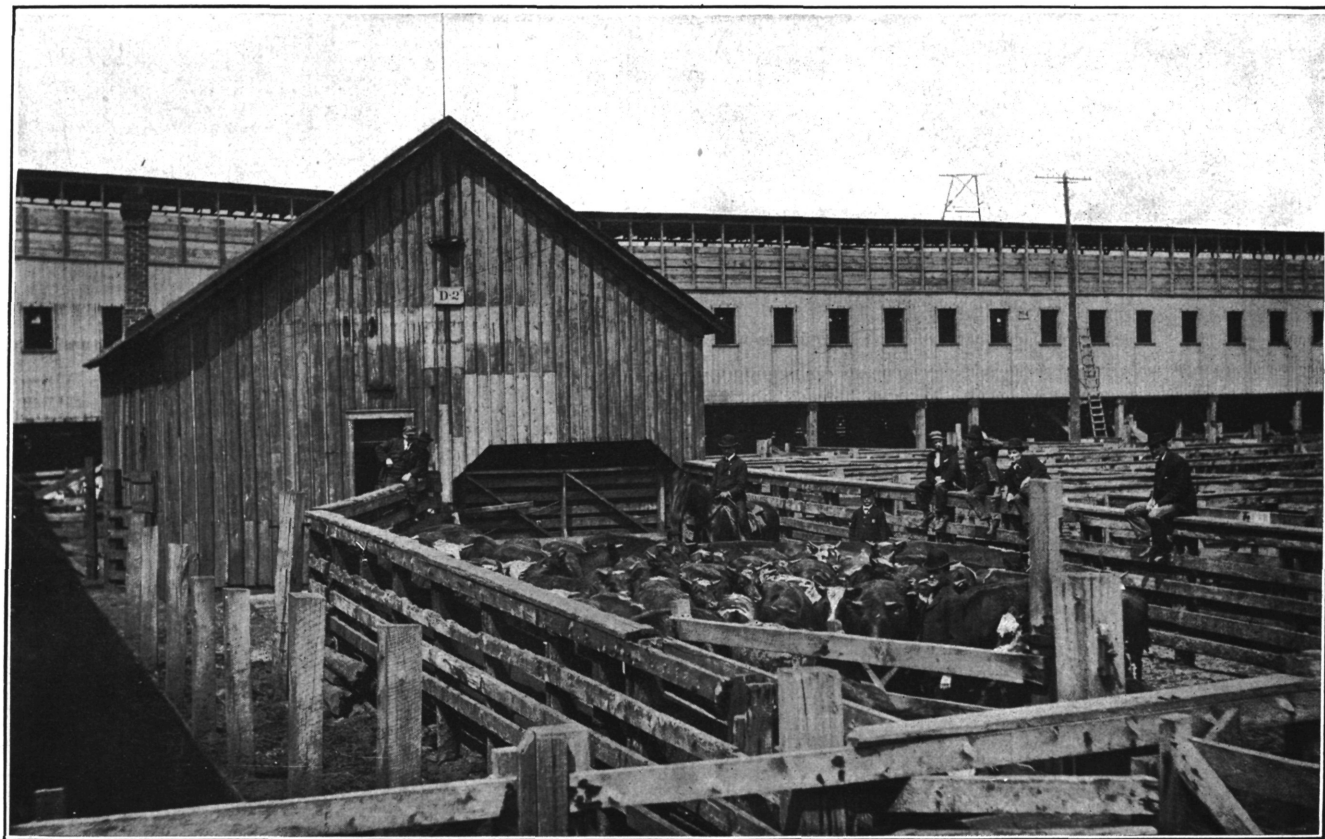
In 1881 Chicago had five meat inspectors on duty, according to Dr. Oscar C. Dewolf, commissioner of health of the city. Two of these inspectors were detailed for duty at the stock yards and three in the city markets. Technically the city had no right to exercise police power at the stock yards, but the stock-yard proprietors and commission men dealing in animals found it to their interest to permit the city inspectors to exercise their functions at the yards, because if an animal was condemned as unfit for food the carcass was retained for fertilizing purposes, while if it were sent to the markets outside the yards it would have been confiscated when condemned and no return made to the owner.

Mr. Perry, after investigating conditions at Chicago, wrote as follows: "These facts seem to warrant the assertion that the meat supply of Chicago is practically entirely wholesome. Self-interest leads the packers and canners to use every available means for preventing even the shadow of suspicion resting upon the goods they have to sell; hence they become most efficient aids to the health department, which has given proof of efficiency in this branch of its work." Mr. Perry further said that comparatively very few of the cattle received at Chicago showed evidences of disease.

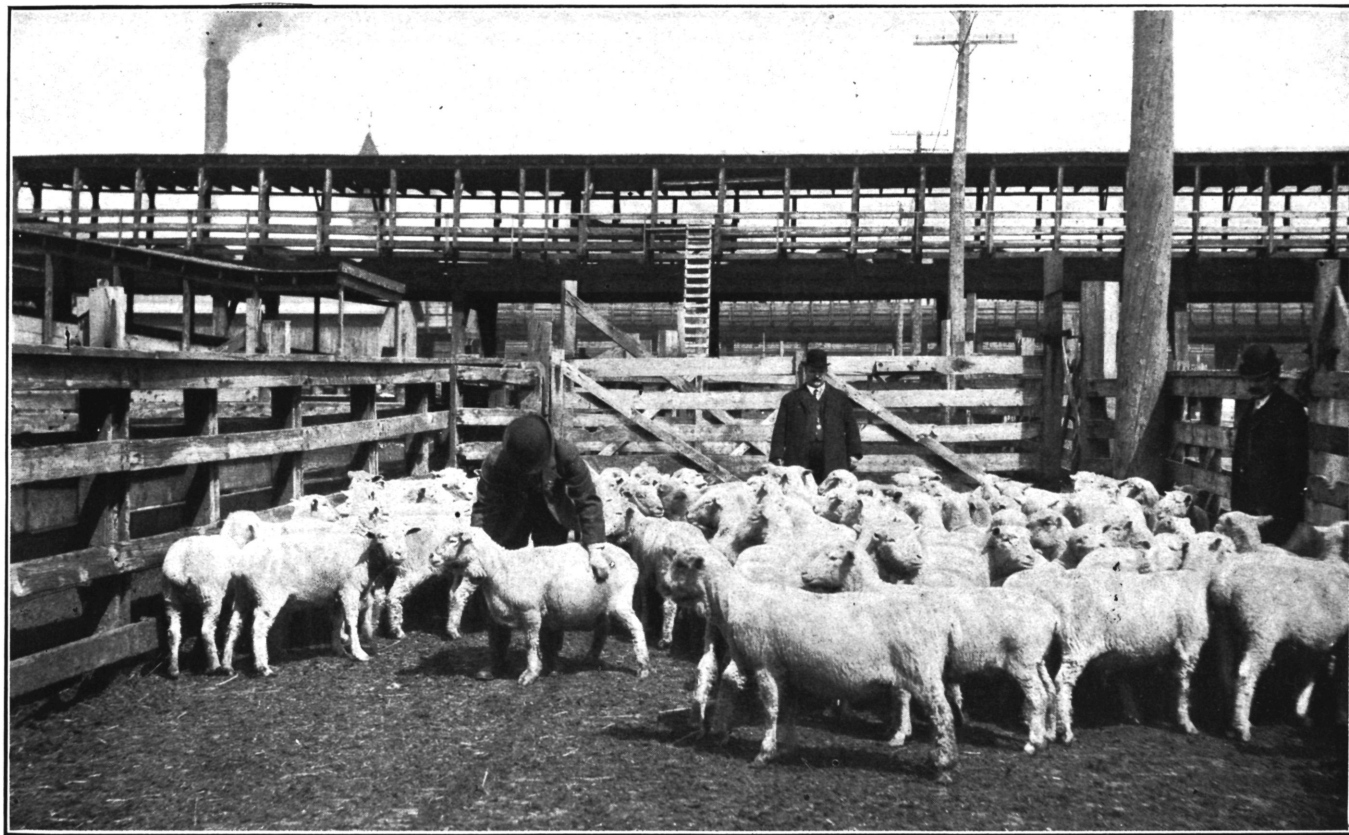
Doctor Dewolf stated that the city health authorities were only interested in protecting the citizens of Chicago, but that for scientific purposes and for other reasons he had closely observed the condition of the hogs received at the stock yards since February, 1877; and he declared that he knew positively that the stories and reports current as to the disposition of packers to slaughter diseased or emaciated hogs for packing purposes were maliciously and wickedly false.

#### INSPECTION AT CINCINNATI.

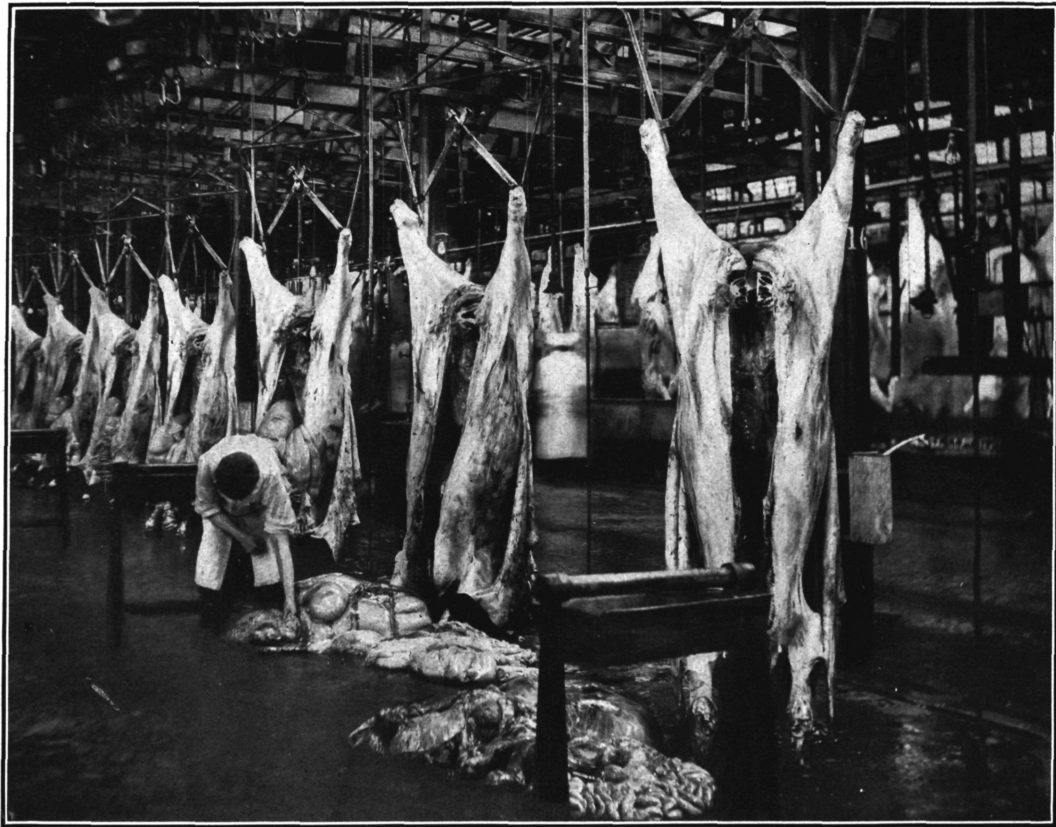
In Cincinnati skilled inspectors were appointed by a board of officers of the chamber of commerce. They were placed under bonds for faithful performance of duty, governed by specific regulations, and accountable to the committee on provision inspection, also appointed by the board of officers of the chamber. These inspectors were ready at all times to inspect hog products, and buyers were urged to have their products inspected. Inspectors also were appointed by the municipality charged with supervising all stock.



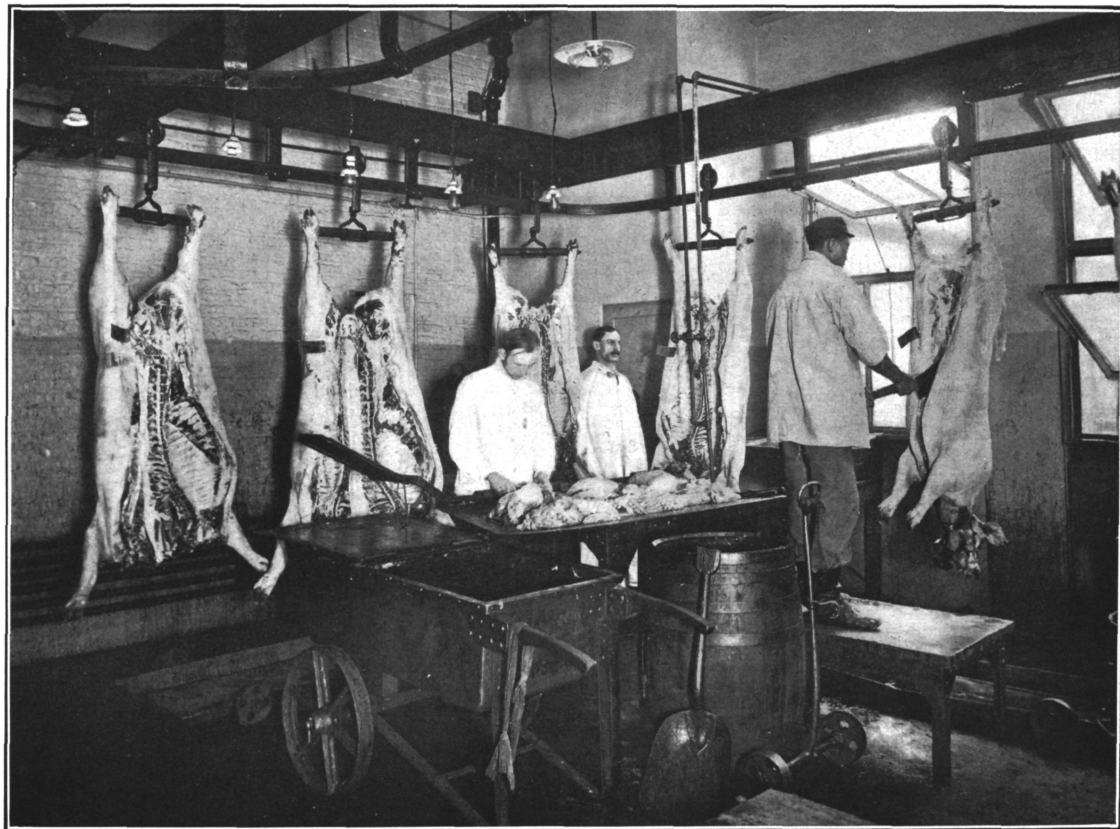
ANTE-MORTEM INSPECTION OF CATTLE.



ANTE-MORTEM INSPECTION OF SHEEP.



INSPECTION OF BEEF CARCASSES AT TIME OF SLAUGHTER.



RETAINING ROOM.

[In this room carcasses held on suspicion on first inspection are retained in custody of inspectors for more thorough examination and final decision.]

## FOREIGN RESTRICTIONS ON AMERICAN LIVE STOCK AND MEATS.

It is clear that inspection by city health authorities and by the packers themselves obtained in the Union Stock Yards in Chicago and in the slaughterhouses of other cities for a number of years prior to 1881, and it is probable that a more or less efficient inspection was practiced from the beginning of the meat-packing business. That this inspection was not satisfactory to some foreign governments, however, was shortly to be shown by the action of several nations in placing restrictions upon our exported meats, and finally in prohibiting them entirely. The decrees against American meats were considered unjust, for the general physical condition of the animals in this country was better than in other countries, and it was generally accepted by stock raisers and meat packers that the prohibition was for the purpose of preventing competition.

Restrictions began with pork products, Italy being the first country to issue a decree, in 1879. She was followed by Hungary a few months later, Spain and Germany in 1880, France, Turkey, and Roumania in 1881, Greece in 1883, and Denmark in 1888. The reason assigned by these countries for prohibiting the entry of our pork was the alleged presence therein of trichinæ and the impracticability of a sufficiently thorough microscopic examination to guarantee that the meat was not affected. Following the passage by the United States Congress of the law of 1891 and the commencement of microscopic inspection of pork, Germany, Denmark, Italy, France, Austria-Hungary, and Spain modified their regulations so as to admit swine products if they were certified to as free from trichinæ.

In the latter part of 1894 various States in Germany and the countries of Denmark, Belgium, and France prohibited the importation of cattle from the United States, giving as a reason the prevalence of Texas fever, pleuro-pneumonia, etc. Since 1879 Great Britain has required that American cattle shall be slaughtered immediately upon arrival. This restriction was brought about by the existence of pleuro-pneumonia in the United States. In 1880 Commissioner Le Duc sent a veterinarian to England to inspect cattle upon their arrival there, and during his stay there not one of the living animals out of 11,000 exported was found to be affected with the disease, and upon post-mortem examination of the lungs only six cases were detected.

Following the prohibition of our pork by Germany and other countries, the Department of State in March, 1881, prosecuted an examination into the various phases of the pork industry in the Western States, covering all possible causes which could operate to render the products dangerous to health, and in October, 1883, the President appointed a commission of impartial scientists and representatives of the New York Chamber of Commerce and the Chicago Board of

Trade, instructing the members thereof "to make a searching examination on the spot of all the conditions of the hog-raising and pork-packing industries of the United States, and to follow by the most practical examination the course of this food staple from the fields and farms of the United States to the wharf where it is shipped or to the shop where it is exposed for sale and domestic consumption." The results of these investigations were communicated to Congress by the Executive, accompanied by voluminous diplomatic correspondence and other information bearing on the subject. While it was conceded that trichinosis was found in American swine, the proportion of animals thus affected was declared to be less than in the countries of Europe.

#### RECOMMENDATIONS FOR ESTABLISHMENT OF FEDERAL INSPECTION.

In 1885 Commissioner Norman J. Colman called the attention of Congress to the importance of vigorous means and measures to protect our cattle interests, saying that the existence of pleuro-pneumonia and other contagious diseases had a very serious effect upon our foreign and interstate commerce in living animals. The Commissioner pointed out that Great Britain on account of it had placed such restrictions upon the trade that no cattle, sheep, or swine could be sent there from this country except for immediate slaughter at the landing place. He showed that since the restrictions were enforced the exportation of sheep had steadily declined from 108,652 in 1879 to 32,510 in 1884, and that of swine from 25,033 in 1879 to 4 in 1884. The restrictions upon interstate commerce from the same cause, the Commissioner said, also had been a great burden, and the reduction in the value of cattle in the affected States had been enormous. The traffic in live animals, he said, formed such an important part of the commerce of the country that such regulations should be adopted as would insure the removal of these restrictions and do away with the cause which led to them. Experience had shown that the powers conferred by the act creating the Bureau of Animal Industry were not sufficient for the purpose. Although relating primarily to the live-animal industry, the remarks of Commissioner Colman had a direct bearing upon the meat business.

In 1889 Secretary J. M. Rusk in his annual report made an earnest appeal for legislation which would provide for a Federal meat-inspection law. The Secretary in vigorous language called the attention of Congress to the widely prevalent rumors of cattle diseases in the United States, which, although having little foundation in fact, continued to be circulated extensively in foreign countries, to the great injury of our cattle trade. The existence of a demand for our surplus meat products, the Secretary said, was plainly evident, and it was in the highest degree desirable that the Government should

adopt all means in its power to secure for producers every opportunity to compete on fair terms in the markets of the world for the disposal of their surplus production. "I would therefore insist most strongly," said the Secretary, "upon the necessity of such a national inspection of cattle at the time of slaughter as would not only secure the condemnation of carcasses unfit for food, if there be any, and guarantee the inspected product as untainted by diseases, but which should enable the national authorities to promptly discover any cattle disease centers."

The Secretary repudiated what he described as "captious objections" on the part of foreign authorities to the wholesomeness of our meat products, but added that as long as the Government neglected to take precautions universally adopted by the governments of those countries in which a market was sought for surplus products, and left it to the officials of other countries to inspect our live cattle or our meats, it was impossible to present as forcible arguments as could otherwise be made against restrictions on our trade, the foreign countries claiming, with some show of reason, that they had better opportunities for learning of diseases among American cattle than were enjoyed by the American Government itself.

"I therefore earnestly recommend," wrote the Secretary, "such an amendment to the law under which the Bureau is at present organized as will provide for such official national inspection as shall guarantee the fitness of our meat products for food consumption under the seal of the United States Government."

#### THE FIRST FEDERAL MEAT-INSPECTION LAW.

The following year (in August, 1890) Congress took the first step toward the establishment of Federal meat inspection by the passage of a law "providing for an inspection of meats for exportation." This act provided for a careful inspection of salted pork and bacon intended for exportation, to determine whether it was wholesome and fit for food, when the laws, regulations, or orders of any foreign government required inspection, or when any buyer, seller, or exporter of such meats requested inspection; and also for the inspection of all cattle and sheep for export. Such inspection, it was provided, should be made at the place where the meats were packed or boxed, and the meats should be stamped or marked after inspection. The inspectors were authorized to issue certificates of inspection to the shipper of the meat and to the consignee and also for the Department of Agriculture.

Primarily, therefore, meat inspection by the Federal Government was begun in the United States not because Congress had in view the

protection of the people of this country from the results of eating diseased meats, but because foreign governments were opposed to allowing American meats to enter their ports for the alleged fear that the people of those countries would suffer therefrom.

Under the law of August 30, 1890, the Bureau prescribed regulations which required all packers or exporters, buyers, or sellers of such meats to make application in writing to the Secretary of Agriculture for inspection. Every inspected package of salted pork or bacon was required to be stamped, if found wholesome and fit for human food. Certificates of inspection were issued to the exporter, the consignee, and the Department. Inspectors were required to report daily the number of stamps issued.

While this law was a step in the right direction, it soon became apparent that it did not meet all conditions. It was the intention of Congress in passing this measure to enact a law which would enable the Government so to certify to the wholesomeness of our pork products as to entitle them to entry in foreign countries. The act, however, provided more particularly for an inspection which would determine the character and manner in which these products were packed and their condition at time of shipment, and did not reach to the more important end of determining whether or not the animals from which they came were diseased at the time of slaughter. The consequence was that foreign governments refused to recognize such inspection certificates as were issued thereunder as sufficient to warrant the removal of the prohibition which they had maintained. Secretary Rusk called the attention of Congress to this inadequacy of the law, and suggested the more important provisions which should be made.

The interest of the people in meat inspection had been increasing steadily, and with the concentration of the slaughtering business in a few large cities the feeling became strong that there should be a more rigid supervision for the protection of the health of consumers than that afforded under the law of 1890 or by the local authorities where the abattoirs were located. This feeling found expression in various States by the enactment of laws designed to secure inspection of meat introduced from beyond their borders. On the ground, however, that such laws were to a greater or less extent discriminative, they were in most if not in all cases held to be unconstitutional, and the desired object was not accomplished.

In addition to the desire of consumers to be protected from the real or fancied dangers to their health there were to be considered the fears excited abroad by alarming though unfounded statements of sensationalists interested in injuring our export trade. It became apparent that if the country was to keep its foreign markets not only must the best meats of all kinds be sent abroad, but they must be

accompanied by certificates that they had been properly inspected and that the animals from which they came were perfectly sound and free from any disease.

#### THE LAW OF 1891.

In the light of these conditions Congress passed the act of March 3, 1891, which provided for the inspection of live cattle, hogs, and the carcasses and products thereof which were the objects of interstate commerce, thereby giving authority for an inspection of animals and meats.

This law provided, among other things, that the Secretary of Agriculture should cause an inspection to be made, prior to the slaughter, of all cattle, sheep, and hogs which were the subject of interstate commerce and which were about to be slaughtered at slaughterhouses, canning, salting, packing, or rendering establishments in any State or Territory, the carcasses or products of which were to be transported and sold for human consumption in any other State or Territory. In addition to this ante-mortem inspection it was provided that "there *may* be in all cases where the Secretary of Agriculture may deem necessary or expedient a post-mortem examination of the carcasses of all cattle, sheep, and hogs about to be prepared for human consumption at any slaughterhouse, canning, salting, packing, or rendering establishment in any State or Territory, or the District of Columbia, which are the subjects of interstate commerce."

It was also provided in this law that it should be unlawful for any person to transport from one State or Territory to another State or Territory, or for any person to deliver to another for transportation from one State or Territory to another, the carcasses of any cattle, sheep, or swine, or the food products thereof, which had been examined in accordance with the law and found by the inspector to be unsound or diseased. It was declared that any violation of this law should be punishable by a fine not exceeding \$1,000, or imprisonment not exceeding one year, or both. Cattle, sheep, or swine slaughtered by any farmer upon his farm and transported from one State or Territory to another were exempted from the operations of this law except in case the carcasses of such cattle, sheep, or swine went to any packing house or canning establishment and were intended for transportation to another State or Territory, in which case they were subject to a post-mortem examination.

#### REGULATIONS UNDER THIS LAW.

The regulations issued under this act provided for an examination before and after slaughter by veterinary surgeons of all animals slaughtered for export or interstate trade, the condemnation of all

animals found to be diseased, and the proper identification of the carcasses and other products entering into these two classes of commerce.

The regulations prescribed that a veterinary inspector should be assigned to each establishment applying for inspection that had been officially numbered, and that the inspector should have full and free access at all times to all parts of the building or buildings used in the slaughter of live animals and the conversion of their carcasses into food products. The inspector was required to inspect carefully all animals in the pens about to be slaughtered, and no animal was allowed to pass to the slaughtering room until it had been inspected. Whenever an animal was found to be diseased it was condemned and the owner directed to remove it from the premises and dispose of it in such manner as was provided by the laws of the State and municipality in which the abattoir was located. The inspector was also required to make an examination of all animals slaughtered and make a report of the post-mortem inspection to the Department. Carcasses found to be diseased and unfit for human food were ordered to be at once removed under the supervision of the inspector and to be disposed of in the manner prescribed by the State laws. Any owner of an establishment who allowed any animal found diseased to remain on his premises beyond the time set by the inspector for removal forfeited his right to inspection and was refused certificates of inspection upon his products. Records were kept of the time and place of inspection, the number of the establishment, and the name of the packer and inspector, in order that all inspected packages might be traced to the place of origin.

The regulations also provided for a microscopic examination of hogs after slaughter in order to certify that they were free from trichinæ, Germany and other countries having prohibited such meats on the ground that they were so affected. When the slaughtered hog was passed into the cooling room the veterinary inspector or his assistant took from each hog carcass three samples of muscle, one from the pillar of the diaphragm, one from the tenderloin, and the other from the shoulder. These samples were put into a tin box and a numbered tag placed upon the hog and a duplicate number on the box containing samples. The samples were then taken to the microscopist, who made a thorough examination of each sample, furnishing a written report to the inspector in charge of the killing room. All hogs reported as affected with trichinæ were at once removed from the cooling room under the supervision of an inspector, and disposed of by tanking or by thoroughly cooking.

The first inspection under these regulations was in New York City at the abattoir of Eastman & Co., May 12, 1891, and was confined to the inspection of their export dressed beef. At the beginning of June, 1891, the work was inaugurated in Chicago, and soon thereafter at South Omaha, Nebr., Kansas City, Mo., Milwaukee, Wis., Jersey City, N. J., and Hammond, Ind. The microscopic examination of hogs was commenced at the abattoirs of Nelson Morris & Co., Armour & Co., and Swift & Co., Chicago, on June 22, 1891.

The workings of this inspection and the carrying out of the regulations were watched with careful scrutiny by the representatives in this country of foreign governments, and the first result of the microscopic examination of hogs was an order made by the German Government on September 3, 1891, removing the prohibition that it had maintained since 1880 against the importation of American pork products. The removal of this prohibition by Germany was followed within a short time by the removal of a similar prohibition by Denmark, and later by Italy, France, and Austria.

The demand for inspection by the packing houses became at once very large, and the insufficiency of the appropriation for the work was made apparent. The attention of Congress was called to this in the first report made by the Secretary of Agriculture after the work was instituted, and it was recommended that Congress appropriate money enough to extend inspection to all applicants.

In the first full year following the institution of Federal meat inspection (the fiscal year ending June 30, 1892) 5,076,929 animals were inspected, of which 3,167,150 were cattle, 59,089 were calves, 1,267,329 were hogs, and 583,361 were sheep.

The experience of the Bureau in making microscopic examinations of pork under the system first established proved in the first year that one examination of three specimens taken from a carcass was not sufficient. The system was, therefore, changed on September 7, 1892, when an order was issued requiring a double examination to be made. Out of 1,172,047 carcasses examined after that order went into effect there were found on the first examination 34,552 containing trichinæ, while on the second examination there were found 5,518 others affected in the same way.

The cost of the inspection of cattle, sheep, and calves to the Government for the year mentioned was  $5\frac{1}{2}$  cents per carcass, and for the microscopic examination of pork 6 cents per carcass. The following year the cost of cattle and sheep inspection was reduced to  $4\frac{1}{2}$  cents per carcass, while the cost of the microscopic inspection of pork was increased by the double examination to  $8\frac{3}{4}$  cents per carcass. The total cost of meat inspection for the first full year was \$279,508.37.

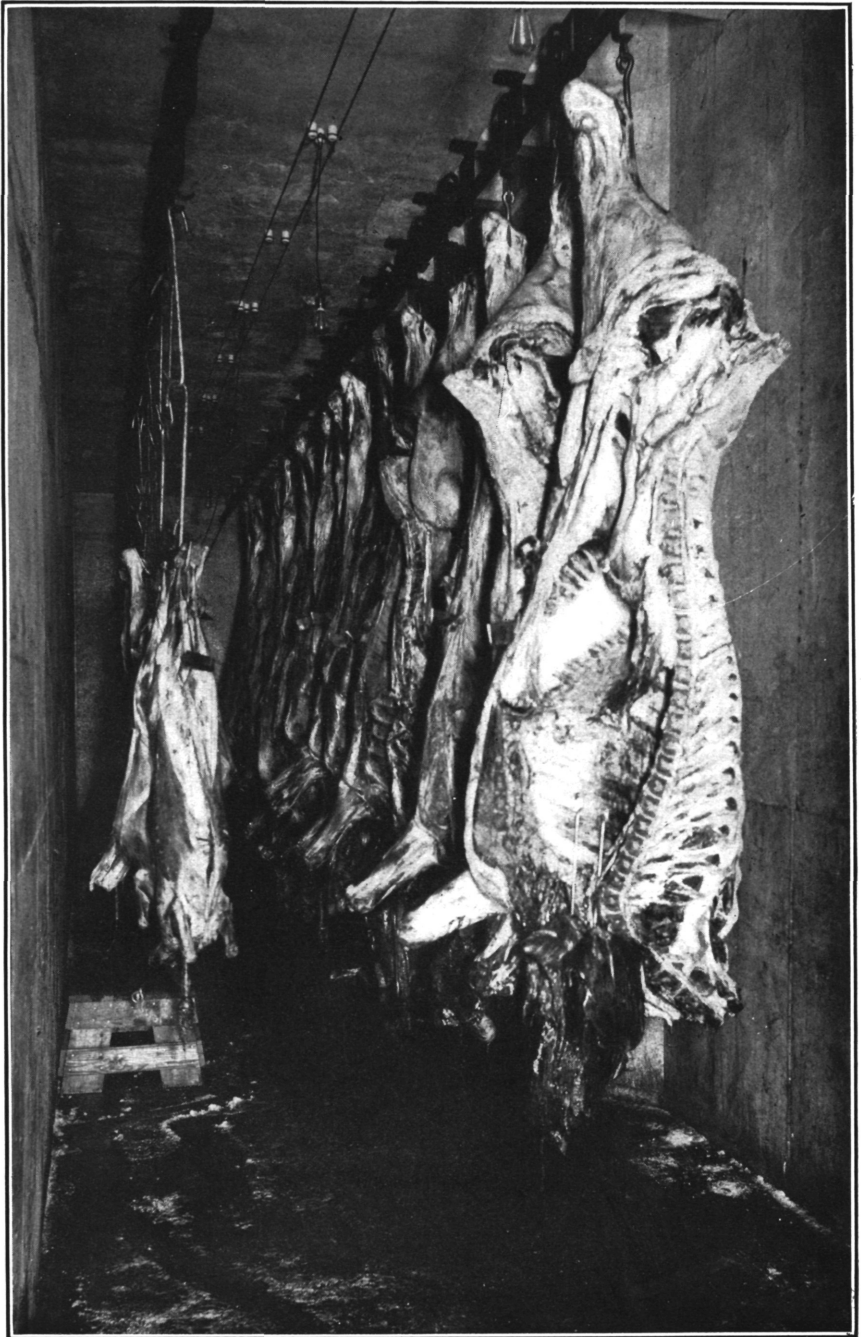
Following the raising of the prohibition in Germany against American pork, the exports from this country increased largely, and in 1892 there were exported 38,152,874 pounds of inspected pork. The next year, however, the exports decreased to 20,677,410 pounds. The quantities exported directly to countries requiring inspection in 1892 were 22,025,699 pounds, and in 1893, 8,059,758 pounds. In a measure this decrease in the exports was attributed to the high price of pork in this country. Other causes were the obstacles put in the way of importation by certain import regulations instituted by the foreign countries which largely imported our meats. Foreign newspapers printed statements criticising the work of inspection and disparaging the quality of our meats. It was said that there were but two or three inspectors at a great packing center like Chicago or Kansas City, and that the hogs were cut into pieces at the time of slaughter, so that it was impossible to identify them after the specimens had been examined microscopically. The German Government, instead of opposing the admission of American pork for want of inspection, after the microscopic inspection had been established in this country, claimed that the American certificates of inspection were not correct. France also imposed burdensome regulations on American pork even after it had been microscopically inspected. Belgium followed with a practical prohibition of American dressed beef in the requirement that the lungs of the animals accompany shipments.

The benefits arising from meat inspection as carried on under the law of 1891, however, made it apparent that the inspection could be extended with profit. Secretary Rusk in his last annual report pointed out the need for extending the inspection to cover all animals slaughtered for human food, in order, first, to secure to the American consumers, who are large meat eaters, and who ought to have the very best kinds of food, the most healthful meats, free from all possible taint or disease. It was also important, the Secretary said, that the reputation of American meat products should be maintained abroad.

By the year 1894 meat inspection had grown into the most important and extensive part of the work of the Bureau of Animal Industry. The ante-mortem and post-mortem examination was extended to hogs at the various abattoirs where inspection had been established, thus greatly increasing the field of this service. In that year inspection was carried on at 46 abattoirs in 17 cities, whereas in the first year of meat inspection but 22 abattoirs had inspection.

#### RECOMMENDATIONS FOR STRENGTHENING THE LAW.

The Chief of the Bureau of Animal Industry (Dr. D. E. Salmon) in his report for 1895 suggested that the States could provide an



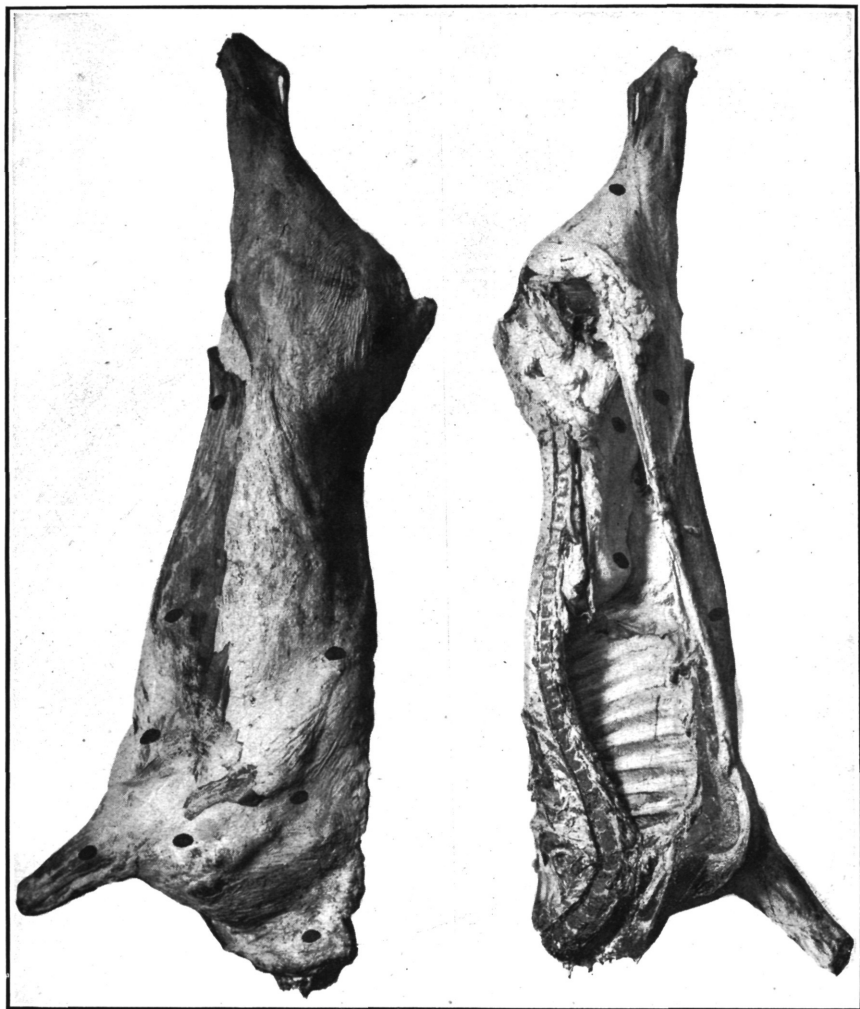
CONDEMNED-MEAT ROOM.

[In this room condemned meat is kept locked until disposed of according to the regulations.]

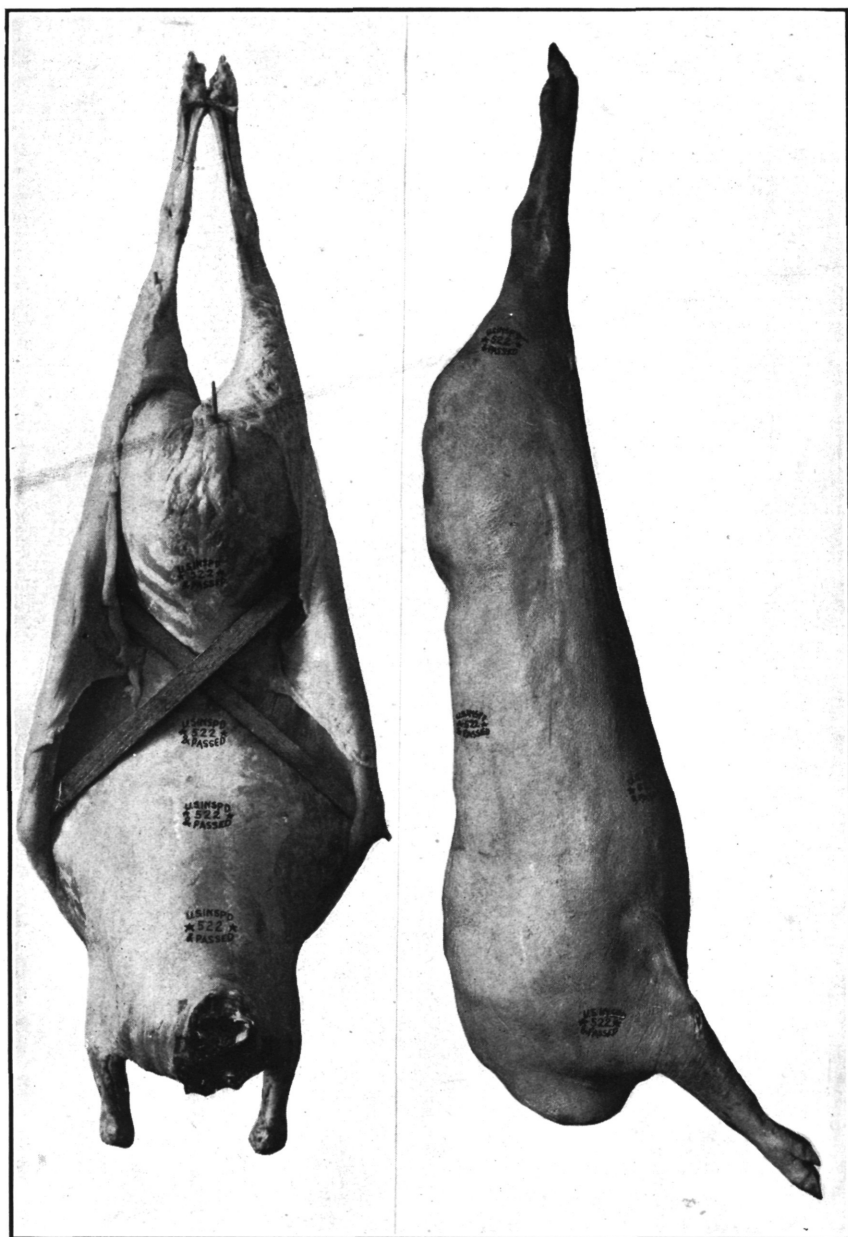


**MARKING INSPECTED AND PASSED CARCASSES.**

[The marking is done by means of a metal hand stamp and specially prepared ink. The design of the stamp is shown in fig. 1 (page 24).]



SIDES OF BEEF, SHOWING LOCATION OF INSPECTION MARKS.



SHEEP AND HOG CARCASSES, SHOWING INSPECTION MARKS.

efficient method of cooperation by enacting legislation making it illegal to sell for human consumption within the State any meat from animals condemned by Federal inspectors unless the animals were held a sufficient time before slaughter to enable them to recover and become fit for food products. This, it was pointed out, would obviate the necessity for applying the State meat-inspection service to the abattoirs which had Federal inspection. The meat-inspection service, he said, would not be in a satisfactory condition until such cooperation was effected.

Despite the absence of a law giving it authority, the Department prevented the sale, even for local trade, of the condemned carcasses of animals slaughtered in abattoirs where inspection existed, by threatening to use its power to expose any firms which dealt in that class of meat.

It was urged that Congress should give the Bureau more power to administer the meat-inspection service. Condemned meat, it was said, need not be destroyed, but the owners should be compelled to use it in a legitimate manner, as in the manufacture of fertilizers and grease. It was not proper for human food and should not be sold for that purpose. It was suggested that to saturate such meat with a nauseous compound like carbolic acid, which would enable anyone to detect it at once, would not detract from its intrinsic value, but would prevent its fraudulent use; or it could be immediately rendered into fertilizer. In addition to giving authority to the Bureau to require a proper disposition of the condemned meat, it was urged that there should be a penalty for failure to dispose of it according to the Department regulations.

It was also recommended that an addition be made to the law prohibiting the operation of an abattoir in the absence of an inspector, and that abattoirs should not be opened on Sunday. The managers of some abattoirs at that time and afterwards showed a disposition to kill animals at night or very early in the morning or on Sunday without notifying the inspector.

#### THE AMENDMENT OF 1895.

The act of Congress of March 2, 1895, providing for the expenses of the Department of Agriculture, amended the act of March 3, 1891, so as to confer power upon the Secretary of Agriculture to make such rules and regulations as he deemed necessary to prevent the transportation from one State or Territory to another, or to any foreign country, of the condemned carcasses or parts of carcasses of cattle, sheep, or swine which had been inspected in accordance with the provisions of the law.

There was no further enlargement of the Department's powers until 1906, although the officials constantly recognized their limitations

and attempted by three recommendations that appear in reports, as well as through quiet work of which no record is preserved, to secure legislative enactments that would remedy the defects.

#### INEFFECTUAL EFFORT TO PLACE COST ON PACKERS.

In 1897 the Committee on Agriculture presented to the House of Representatives a bill proposing that the Secretary of Agriculture should charge for the inspection of meat at the rate of 3 cents a carcass for cattle, 1 cent a carcass for sheep and swine and other animals, 3 cents for each carcass or piece of pork examined microscopically, and 1 cent a hundred pounds for meat reinspected. The committee said that the expenses of the Bureau of Animal Industry had increased and that the beneficiaries should pay at least a portion of this expense, and they added that the packers who had inspection were the beneficiaries, for "they certainly enjoy market advantages not possessed by the owners of meats not so inspected and certified." The average cost of meat inspection was then 5 cents for cattle, 2 cents for calves, sheep, and swine, and 5 cents for microscopic examination of each piece of pork, and the committee proposed to divide this between the public and the packers. The bill failed.

#### THE LAW OF 1906.

Although neither the law of 1891 nor the amendment of 1895 mentioned sanitation, the Department in February, 1906, issued a radical rule, demanding cleanliness in all parts of the packing house and the installation of toilet rooms. Progress was being made on this line when the agitation of 1906 directed public attention to the inadequacy of laws on the subject and brought about the enactment of the law of June 30, 1906. The so-called revelations, however, can scarcely be said to have added anything to the Department's knowledge, while such of the strictures as were exaggerated and incorrect were, from the Department's thorough familiarity with the subject, easily refuted. The defects and limitations of the laws under which the inspection had been conducted up to that time were realized by the Department, and several unsuccessful efforts had been made by the Secretary of Agriculture and the Chief of the Bureau to procure the enactment of new legislation and the increase of appropriations in order to extend the inspection and improve its efficiency. The disclosures of unsatisfactory conditions in 1906 related almost wholly to canned and prepared meats, the use of preservatives, and the insanitary condition and methods of the packing establishments—matters over which the Department up to that time had no control under the law.

The law of June 30, 1906, took effect the next day, except that the provisions regarding the transportation of meats did not go into

effect until October 1. It conferred on the Secretary of Agriculture greater power and made a permanent annual appropriation of \$3,000,000 to pay the cost of the inspection, enabling the Department to greatly extend and strengthen the inspection service. Under this law the inspection is applied not only to the live animals before slaughter and to the carcasses immediately after slaughter, as was the case under the former law, but afterwards to the meats and meat-food products in all the stages and processes of preparation, curing, canning, etc., and the Department is empowered to require sanitary equipment, conditions, and methods in the slaughtering and packing establishments, to prevent the use of harmful chemicals and preservatives and of misleading labels, and to regulate the transportation of meat in interstate and foreign commerce.

This law applies only to cattle, sheep, swine, and goats, and to the carcasses and meat food products of these animals. Poultry, fish, and game are not subject to inspection, and there is no need at present to provide for the inspection of either horses or dogs, there being none slaughtered for food in this country.

The largest sum ever expended for meat inspection in any one year before the passage of the new law was a little more than \$800,000.

#### DESCRIPTION OF THE MEAT INSPECTION.

Meat inspection under this law proceeds by logical steps. Meats or meat food products, except those of farmers, retail butchers, and retail dealers, can not be shipped from one State to another or abroad unless they bear the official meat-inspection marks. A person or firm desiring to make such shipments must therefore make application to the Department for inspection, stating the extent and character of the business expected to be done. The Department, as directed by the law, sends its experts in sanitation, who look over the plant and make their report with recommendations to the Washington office.

#### SANITARY REQUIREMENTS.

Usually changes are required in sanitation or in facilities for conducting the inspection. The Department points out to the applicant the necessary changes, and its requirements are in accordance with broad and well-known principles. It requires that each room used in the ordinary processes be well lighted and ventilated; that ceilings, walls, and floors be of such materials as to be easily cleaned; that toilet rooms, urinals, and dressing rooms sufficient in number and ample in size be provided and be fitted with modern lavatory accommodations, including running water, toilet paper, soap, and towels; such rooms must be properly ventilated and lighted and be

entirely separate from the compartments where carcasses are dressed or meats handled. The last-mentioned compartments must be so located that odors may not drift into them from toilet rooms, catch basins, tank rooms, hide cellars, etc. The premises about the plant and belonging to it also come in for attention. The yards, pens, alleys, and chutes must be clean, and the common practice of fattening hogs or other animals on the refuse of the slaughterhouses is forbidden on the premises, as well as any other use not countenanced by the principles of sanitation. When reports show that the packer has put his plant in proper condition, the Bureau assigns an official number to the establishment, details a sufficient number of inspectors to conduct the inspection, and business may proceed.

This, however, is not all there is to the sanitation required by the law. A slaughterhouse gets dirty with great rapidity; like a small boy, it requires constant cleaning. Blood flows in streams, and entrails with their contents must be handled. One day's operation, or less, is sufficient to put the plant into such a condition as to offend the sensitive eye and nostril and to sicken the weak and unaccustomed stomach. For his own profit the enterprising packer will keep up a degree of cleanliness, but the Bureau requires more. It demands that ceilings and walls shall be frequently cleaned and whitewashed or painted, and that trucks, trays, and other receptacles, chutes, platforms, racks, tables, and all tools used in moving, handling, cutting, chopping, mixing, canning, or other processes be thoroughly cleaned each day they are used. It looks after the workers also and forbids the employment of anyone who has tuberculosis or other communicable disease; it requires that the clothing which comes in contact with the meat shall be of a material that is readily cleaned, and that it shall be cleaned each day. This requirement has induced many of the larger packers to establish laundries and provide their workmen with clean outer clothing daily. Personal cleanliness on the part of the workmen is insisted upon, and to such an extent is this carried that some establishments employ professional manicures who daily treat the hands of girls engaged in handling such products as chipped beef.

At present the Department encounters little trouble in securing compliance with its requirements at new plants; but, as may well be understood, the first appearance of the new regulations created some consternation. The Department did not desire to stop arbitrarily the meat business of the country, but there was much to be done and little time to do it. By maintaining a firm and rational attitude, however, the Bureau has succeeded in permitting business to proceed in accordance with the law and in bringing about a standard of cleanliness that never before prevailed among the slaughtering and meat-packing establishments of the country.

## ANTE-MORTEM INSPECTION.

As conducted at present, the first step in actual inspection is the examination of the living animal. (See Plates I and II.) The law does not absolutely require this, but places it within the discretion of the Secretary. Government inspectors make this examination in the stock yards or in the pens, alleys, etc., of the establishment by which the animals have been bought and in the slaughterhouse of which they are proposed to be slaughtered, and no animals which have not undergone this examination are allowed to enter the slaughterhouse proper. The pens contain from as low as 10 to as high as 200 animals each. The inspector goes into the pen and looks carefully over each animal. When he finds one that to his mind is not perfectly sound and healthy he or his assistant affixes to its ear a numbered metal tag bearing the words "U. S. Suspect." Such animals are segregated and slaughtered separately from other animals, either before or after the regular course of the killing. If the post-mortem examination of an animal does not confirm the suspicions aroused by the appearance of the live animal, and no lesions of disease are found, the tag is taken off and sent to the office of the inspector in charge of the station, who has already been informed of the number of the tag after it was affixed on suspicion, and the carcass is sent along as edible meat. If lesions are found which warrant condemnation, the carcass is sent to the tank, the tag being removed and taken with a report to the office.

During the nine months ending June 30, 1907 (the time covered by the new law), the Bureau inspected ante-mortem nearly 51,000,000 animals and held out as suspicious 42,439 of them. Of these suspects 9,262 on subsequent post-mortem examination were entirely condemned.

THE PROCESS OF SLAUGHTERING.<sup>a</sup>

Animals which have been found by the inspector on the ante-mortem inspection to be sound and healthy are not marked, but proceed by runways into the slaughterhouse itself and to the killing floor, which for cattle is usually at the top of the building. The cattle go into narrow inclosures, called "knocking pens," from one to five to a pen. The knocker walks on a platform above and with a poleax strikes the animal on the head. As it falls stunned the side of the pen opens, the pen floor tilts, and the animal rolls out on the "beds" a foot or so below. In a few moments a shackle is attached to a hind leg and the animal is hoisted and hangs from the rail of an overhead tramway. In this position the stickler bleeds him by a longitudinal incision that

<sup>a</sup> This description applies especially to the typical large establishment with modern equipment. While methods and details may vary in the smaller houses, the inspection is carried out on substantially the same principles.

severs the principal blood vessels in the neck. When the blood is to be used for food purposes it is caught in a numbered receptacle and held until the carcass is further examined. The overhead traveler now carries the animal forward, and workmen skin the head and cut it off, placing it on a rack and marking it so that it can be identified should cause for condemnation be found elsewhere in the carcass.

A string of butchers now follow each other in rapid succession. The "leggers" remove the hind legs at the hock and the forelegs at the knee; the "sider" skins the animal down as far as he can work toward the floor; the "caul puller" cuts the carcass from throat to anus, removing the caul fat from the abdomen and placing it in a box, which is numbered for identification; another butcher loosens the trachea and saws through the sternum; another butcher skins the buttocks and usually cuts off the tail, which latter is also marked for future identification. The carcass is now hoisted clear of the floor and the "backer" finishes the skinning; at the same time the "gutter" is at work removing the viscera; the rump sawyer then takes the eviscerated carcass and divides it from the coccyx to the lumbar vertebræ; the "splitter" follows with his cleaver and continues the splitting to the base of the neck; the neck man or hide dropper finishes cutting the hide from the neck, after which another butcher splits the cervical vertebræ, thus separating the halves. Trimmers then cut off the ragged pieces of flesh, remove the spinal cord, and pump the blood out of the forequarters by rapidly moving the forelegs up and down.

These various processes are mentioned in detail to show the high degree of specialization attained in the work of slaughtering in the large American establishments as compared with the slower process of this work in foreign countries.

#### POST-MORTEM INSPECTION.

At the first exposure of the glands when the head is severed—these being common seats of tubercular infection—a Federal inspector makes an examination for evidences of disease, himself cutting into the glands, if necessary. Another inspector stands at the elbow of the gutter and, as the viscera are revealed, watches with practiced eye for abnormalities, carefully examining and handling the various parts in order that any obscure indication of disease may be discovered. (See Pl. III.) The Bureau requires this inspector to handle the viscera and, if necessary, to cut into them. This is rapid as well as exacting work, and the head and visceral inspectors frequently exchange places, or the visceral inspector is relieved by another, after two hours' work.

When the inspector finds a diseased carcass he attaches to it by means of a wire and seal a paper tag with the words "U. S. Re-

tained" on it and numbered to correspond with the number on the stub from which it is taken. He sends the numbered stub to the office with his report. The carcass, with the parts that have been separated, none of which is allowed to lose its identity, is now sent directly to a compartment called the "retaining room." (See Pl. IV.) The Government requires this important room to be rat proof, well lighted, to have floors of cement, or of metal or brick laid in cement, and to be provided with facilities for locking. The Government also provides a special lock for the room, and the keys remain in the custody of the inspector. At convenient periods the retained carcasses undergo in this room at the hands of other inspectors a more leisurely and careful inspection.

This is the final step in the post-mortem examination. The inspectors here have a good deal of personal discretion. Certain definite rules are laid down by the Bureau, but something must be left to the judgment of the inspectors. They must pass upon the question of the extent of the affection and decide whether or not the whole carcass or only parts of it should go to the tank. Not being pushed by the exigencies of the rapid work on the killing beds and the necessity of keeping up with the never-ending stream of carcasses, they are deliberate and careful in making their examinations and in forming their judgment. Carcasses which they decide to be fit for food they permit to be removed and placed with other healthy carcasses, which have been passed on the first inspection. They take off the "U. S. Retained" tag, return it with their report to the office and stamp it "U. S. Inspected and Passed."

When their examination confirms the suspicious indications of the first examination, however, they stamp conspicuously on the carcass, also on the tag, the words "U. S. Inspected and Condemned." The carcass is removed immediately from the retaining room under the eye of a Government employee, and goes either to the tank or, if it is not convenient to tank it immediately, to the condemned meat room (Plate V), which, like the retaining room, is provided with a lock, the key of which is kept by a Government employee, and which is opened only by Government employees. As soon as practicable Government men remove the carcass to the tank, keeping a record of the tag numbers, which they forward with their reports to the office. At houses which do not provide a "condemned room" the carcass is sent directly to the tank. About 25 per cent of the carcasses retained are condemned.

All carcasses, both fit and unfit, having been removed from the retaining room, the floors and walls are washed with hot water and disinfected in order that the room may be clean and free from disease infection for the reception of the next batch of retained carcasses.

Returning now to the killing floor and to the carcasses with which the inspectors have found nothing unhealthy, the overhead traveler carries the separated halves along out of the way of the other operations, and workmen subject them to thorough washing with very hot water, usually from a hose or from an ingenious combination of hose pipe and brush, and wipe them dry with clean towels. During this process the hanging halves slowly approach the chill room, just before entering which they are marked with the inspection legend in five places or more on each side of beef, usually on the loin, rib, chuck, plate, and round. The marking is done by means of a metal or rubber stamp and a purple indelible ink, and the words thus stamped are "U. S. Inspected and Passed," or an abbreviation of these words, with the establishment number. (See Pls. VI and VII and fig. 1.) The number is one assigned to the house by the Department at the time inspection is begun. It is registered in the Department records, and

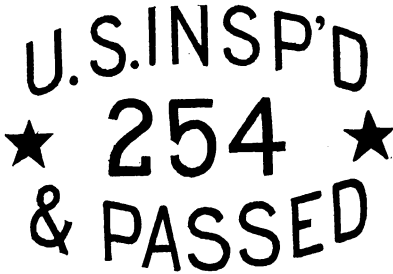


FIG. 1.—Facsimile of mark placed upon meat which has been inspected and passed. (The form of this stamp is subject to slight change, the essential feature being the words "Inspected and Passed" or an abbreviation thereof.)

besides serving as a convenient means of reference it provides a sure method of tracing meat about which questions may subsequently arise.

This mark is absolutely necessary under the law to procure the movement of the meats between States. The law forbids carriers to transport from one State to another any meats that are not so marked, except the meats of farmers and of retail butchers and dealers. It may as well be

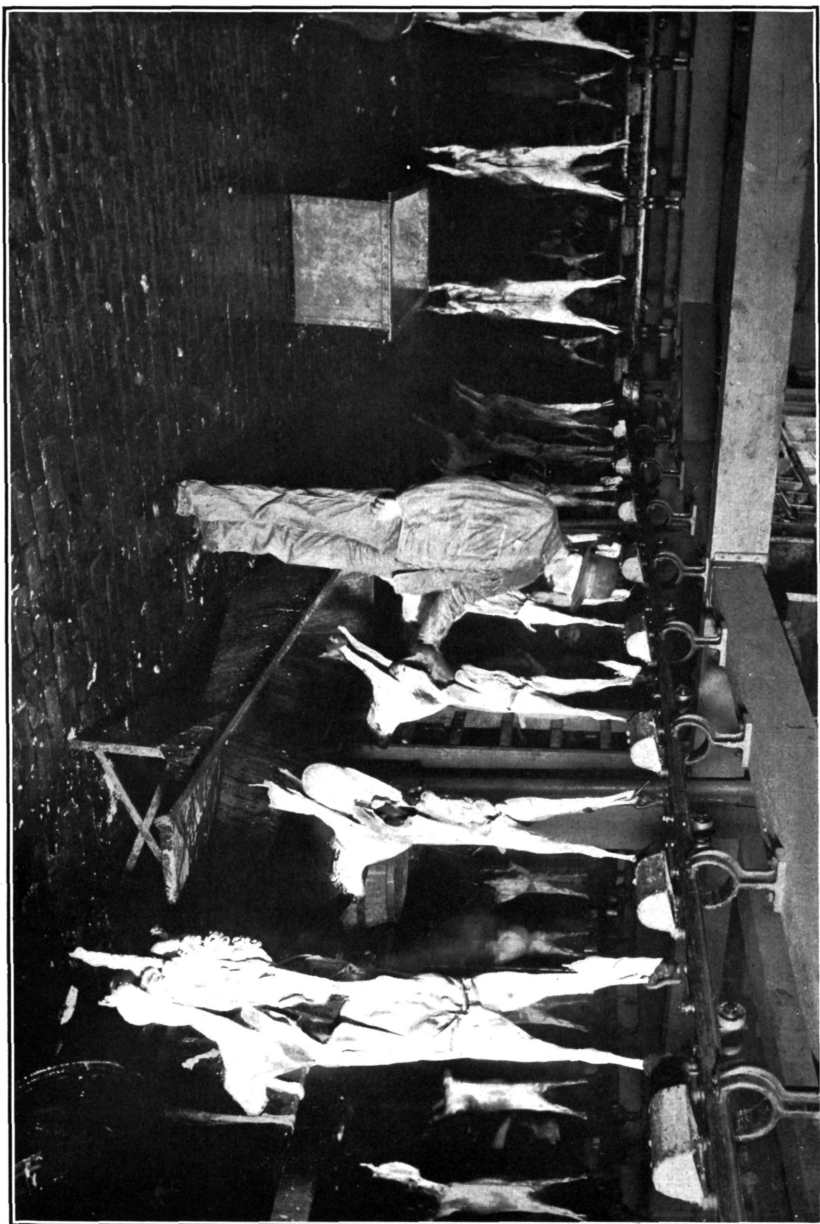
repeated here, in order to emphasize the statement, that the Federal law does not and can not forbid the carriage of unmarked meats inside a State, so that in the absence of State laws the carriers may, unmolested, carry any kinds of meat from one part of a State to another.

The sides now pass to the chill room, where they are held at a temperature of about 36° F. for forty-eight hours or more before being further dealt with. (See Pl. IX.) The head, tail, caul, and liver are removed to other parts of the house.

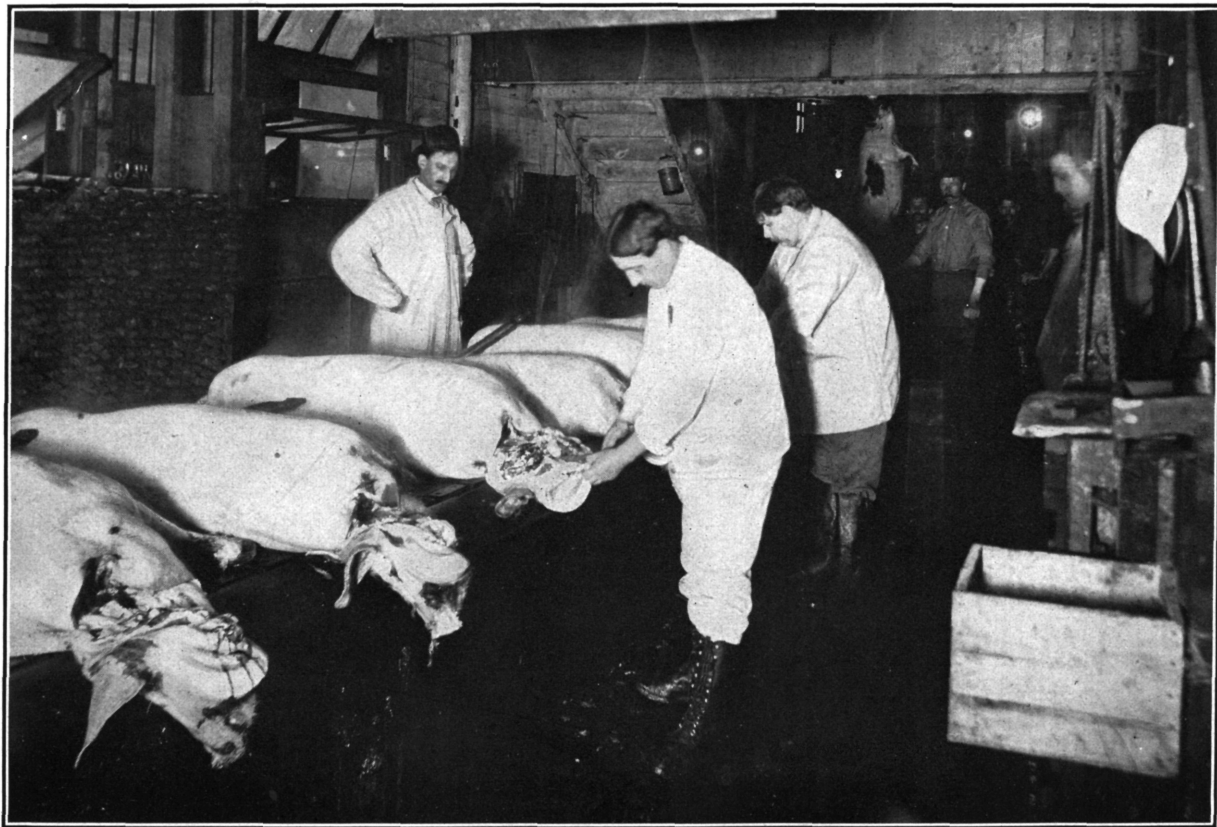
On modernly appointed killing floors the offal is expeditiously removed by means of chutes. The meat has not during the entire process of slaughter been allowed to touch the floor. When the inspector has detected disease in a carcass and attached the "Retained" tag to it, he orders the butchers, before they proceed to another carcass, to cleanse their hands of all grease and to immerse



INSPECTED AND PASSED BEEF IN COOLER.



INSPECTION OF SHEEP CARCASSES.



HEAD INSPECTION OF HOG CARCASSES.

[This inspection consists of an examination of the glands of the neck for tuberculosis. Experience has shown that if the disease is present at all in the carcass it can be detected in these glands in 93 per cent of the cases.]



VISCERA INSPECTION OF HOG CARCASSES.

them in a disinfectant solution, usually bichlorid of mercury, 1 to 1,000. He sees that all tools and implements used in the suspected carcass are likewise cleaned of grease and immersed in boiling water or in a disinfectant solution. For this purpose disinfecting tanks are now in general use, provided with three compartments—one of hot water to take off the grease, a second with the bichlorid of mercury solution, and a third with hot water for final rinsing.

The slaughter of calves, sheep, and goats follows generally the plan described for cattle, sheep often being killed at one end of the beef-killing floors.

#### SLAUGHTER AND POST-MORTEM INSPECTION OF HOGS.

The slaughter of hogs, however, is entirely separate and the processes are different. In the larger houses, where 300 to 500 hogs are killed in an hour, the slaughtering proceeds about as follows:

A group of hogs is herded in a pen, through one side of which revolves a huge hoisting wheel with stout hooks attached near the outer rim. Boys go into the pen and deftly attach the loop of a chain to a hind leg of the hog and hang the other end of the chain to a hook on the wheel. The wheel slowly elevates the squealing animal, and at the top the chain automatically passes to an inclined rail. The hog, hanging head down, passes to the sticker, who at one stroke severs the larger blood vessels of the neck. When the animal is dead the carcass is dropped into a great vat of scalding water, where it is poled from one end to the other. Long finger-shaped hooks then lift the body and pass it to an automatic scraping machine, which speedily removes most of the hair. Emerging from this, the carcass drops onto a moving platform, which carries it before a butcher, who almost severs the head, exposing the cervical glands, where about 93 per cent of the cases of tuberculosis are detected. Beside the butcher stands a Government inspector, who examines the glands, feels them, and, if necessary, cuts further with his own knife. (See Plate XI.) Quick and accurate work is demanded here. If he detects disease he marks the carcass—sometimes with a black cross on the fore quarter, sometimes by severing the ligaments of a foreleg. Beside him is a pail of disinfectant solution into which he thrusts his knife before the next hog reaches him. The animal thus marked passes on with the others, gambrel sticks are affixed, and the carcasses are hung on the overhead rail and subjected to washing and further scraping. Here the marked hogs leave their fellows. A Government employee switches them to another rail, attaches the "U. S. Retained" tag, and sends them along to the retaining room. Those carcasses the head examination of which has shown no disease pass on the regular rail to the gutters, who disembowel them. The carcass and viscera of each animal pass before another skilled inspector, whose duties are as unenviable as those of perhaps any other employee, for he

must sit close to his work and handle each set of viscera for evidence of disease. This found, he tags the carcass "Retained" and it is switched to the retaining room, the viscera likewise being tagged and sent with the carcass.

The carcasses which have thus far passed the head and visceral inspections and show no sign of disease proceed along the rail and are split into halves. Inspectors examine the freshly cut halves, and sometimes find lesions in the bones or muscles, in which case also the carcass is marked for the retaining room.

The processes from now to the finishing of the carcass are the same as those detailed for cattle. The untagged animals are allowed to pass through the shower bath, are labeled, and go to the cooling rooms, while inspectors make a closer examination in the retaining room of those carcasses which have been held as suspicious and determine whether they should be allowed to pass unconditionally, be made into lard, or be sent to the offal tank.

#### THE DOUBLE SYSTEM OF POST-MORTEM INSPECTION.

Briefly contrasting the two separate post-mortem examinations—that on the killing floors and that in the retaining room—we find that the floor inspectors have a very limited discretion. Their orders are to hold any carcass that shows the minutest lesions of disease. The business of both the head and visceral inspectors is to find disease and to stop the carcass then and there for a further inquiry. Once disease is found, or something that looks to the inspector like disease, the carcass must be retained. .

On the other hand, the inspectors in the retaining room take their time. It is their duty to examine into the extent of the disease and, in the light of modern knowledge, to judge whether it is local or general, whether or not it unfits the meat for human food, and whether or not the fat may be allowed to be rendered into lard at a prescribed temperature. By this careful work the inspectors condemned in the fiscal year ending June 30, 1907, more than 50,000 carcasses of hogs out of about 175,000 held by the floor inspectors.

#### INSPECTION IS ADAPTED TO PACKING BUSINESS.

The Department provides a sufficient number of inspectors for this work and insists that they be furnished every facility in the way of space and light. Here, as elsewhere, it seeks to accommodate its inspection to the business of the owner of the abattoir. Within reason it will require its men to work as long as his, to begin as early, and continue as late. The inspectors will work as fast as the improving appliances of the establishment permit or as its needs demand, and the Bureau will not require the proprietor to stop his work to send for the inspector or to wait while the inspector returns to his

office and makes out an elaborate report—a procedure which is common in the inspection systems of some foreign countries. It requires only that notice be given of the hour that work is to begin, and its men will be on hand and ready to begin. In short, the Bureau of Animal Industry also specializes in its inspection service, and claims to be as modern and as up-to-date as the finely organized business it supervises.

#### MEANING OF "DISEASE."

Some explanation and caution in reference to the word "disease" as used in the foregoing description may be necessary. The percentage of animals condemned is not the only measure of the efficiency of a meat-inspection system. While it is true that a certain proportion of the animals inspected are practically sure to be diseased, and the system should discover, condemn, and destroy them, yet the inspection should be careful and discriminating. No country is so rich that it can afford to throw good meat into the tank. Prices of meat are usually high enough without increasing them by an indiscriminate condemnation of carcasses that are fit for food.

The word "diseased" in connection with meat inspection has a meaning that differs from the generally accepted idea. To the popular mind the thought of eating the meat of a diseased animal is abhorrent, yet it may be stated upon the most eminent medical authority<sup>a</sup> that "not any single animal used for food in any part of the world would, upon microscopic study, be shown to be absolutely free from all infection or lesion." From the standpoint of meat inspection, however, the meat of the great majority of animals is not considered "diseased." Some light infections are common to food animals, but there is no proof that they in the remotest degree depreciate the value of the meat or that the infection is transmissible to man. There may be a strictly localized tuberculosis, consisting, for instance, of an isolated tuberculous nodule in the lungs, in the liver, or in some other portion of the body. Such nodule would make the particular point infected "diseased," from the standpoint of meat inspection, but, the authorities referred to add, "the carcass in general would not be 'diseased,' and there would be no justification in condemning it." It follows, then, that at this point the inspector in judging whether a carcass is "diseased" or not must do so "upon the general principles of pathology in its relation to the public health, and not upon any preconceived, exaggerated, or sentimental idea."

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<sup>a</sup> Commission of experts appointed by the Secretary of Agriculture to consider and advise concerning those portions of the Department's meat-inspection regulations relating to the disposition of carcasses affected with various diseases and abnormal conditions.

At this point—with the killing of the animal—previous meat-inspection laws practically stopped. The Department perforce formerly contented itself with placing labels on canned goods stating that the meat was from animals healthy at time of killing.

The present law is more inquisitive. It stations its agents at the doors of each of the other departments of the meat establishments, and they demand to be shown the marks indicating the previous satisfactory inspection of all meats that are brought in to be processed in any way. It is well known that many of the larger meat firms not only slaughter and sell carcasses whole, but also cut up carcasses and prepare them in numerous ways, as by curing, pickling, smoking, cooking, canning, or by making them into sausage, thus utilizing also many of the trimmings from the various parts of the carcass. Many other firms confine themselves to this latter feature of the meat business or to one or more branches of it, buying their meats from the slaughterers. In either case, if the products are to go into interstate or export trade, Government inspectors permit nothing to come in that has not been inspected and passed; furthermore, having satisfied themselves that the meats have been so passed, they make another careful examination to assure themselves that the meats have not spoiled or become unclean since the inspection at time of slaughter. Such as have undergone changes that make them unfit for food they reject, obliterate the inspection mark, and destroy. They then supervise the entire preparation, and require all fixtures and appliances, such as tables, trucks, trays, vats, machines, implements, cans, or containers of any kind, to be clean and kept clean. They see that no drugs, chemicals, or coloring matters are used, and no preservatives except salt, sugar, vinegar, wood smoke, and saltpeter.<sup>a</sup> They make an exception in the preservative line, in accordance with the meat-inspection law, to the extent of allowing a manufacturer to pack export meats in accordance with the directions of the foreign purchaser when the use of such preservatives as he prescribes does not violate the laws of the country to which the meat is to be exported. For example, England makes no objection to the use of borax; consequently, meats to be sent to England may be preserved with borax, but they must be prepared in separate rooms and marked with special labels showing that they are for export only.

Sausages, chopped meats, and similar products are the subject of careful supervision. As is well known, such products afford a profitable means of disposing of many trimmings that can be utilized in no other way, and they have long been the object of derisive and

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<sup>a</sup> Saltpeter is allowed pending a very full investigation to determine whether it is harmful.

mirthful comment. The preparation of sausage has, in the past year, undergone a wonderful change for the better. At the outset it was freely predicted that its manufacture was not practicable without the preservatives and coloring matter which had long been used. The Bureau insisted, however, upon a strict compliance with the law, with the result that manufacturers speedily found it necessary to use more care and cleanliness in preparation, and thus remove at the beginning the causes of the defects which it had been the custom to cover up. The manufacturers themselves are much better satisfied with the new conditions. Their mental attitude is illustrated by the remark of a manufacturer in a small way who, in order to comply with the law, had to spend some \$500 on his plant, and who said: "Why, *now* I am glad to have my friends come in and see how I make sausage."

The preparation of the immense output of canned meats is supervised in the same manner. If in the course of any process any of the meat is discovered to be bad it is condemned, or if when packages are boxed for shipment any are discovered to have become unfit, they likewise are condemned. Many processes are necessary between the arrival of the meat and the shipment of the canned product ready for the consumer. Inspectors are present at all times insisting at every point on purity and fitness in the materials and on cleanliness in workers, workrooms, and utensils. As a further safeguard the Department has equipped and manned branch laboratories at the points of the greatest output. Here, with microscope and reagents, special experts examine the salt, the spices, the pickling fluids, the fats and oils used, with a view to detecting any forbidden preservatives and coloring matters; in short, they bring to the aid of the inspection service the best efforts of modern bacteriological and chemical science. Samples of the finished product are taken at random from stocks, and are even purchased from retailers at distant points. Even the water used, not only here but also in washing carcasses, must pass analytic scrutiny; and several houses accustomed to drawing their supply from contaminated sources have had to abandon the practice.

#### HONEST LABELING REQUIRED.

Having seen that only wholesome meat is used, and that every possible precaution is taken to have it clean—having, to use a famous phrase, inspected the meat "from the pasture to the package"—the inspectors go one step further, and see that the package is properly and honestly labeled. It is something to know that your package contains good meat, and it is something also to know that you buy what you think you buy. The law attains this desirable end by carefully regulating the trade labels that go on the packages. The Department lays down the broad rule that the label shall tell what

is in the package. This seems simple, but it has led to many curious complications. It had been usual, for instance, to label many mixtures as "potted ham" or "potted tongue," or "deviled" or "minced" ham or tongue. At present, if these labels appear, the can must contain only ham or tongue, as the case may be. Shoulders used to be labeled "picnic hams," or "California hams." They must now appear as "picnic shoulders" or "California shoulders."

Geographical falsities have also disappeared. We used to see a ham labeled "Westphalia ham," or "York ham," the inference being that it came from Westphalia, Germany, or York, England, localities famous for their ham products. These hams now appear as "Westphalia style," or "York style," or "York cut" hams. In the same way we used to see "farm sausage," "Oxford sausage," or "Vienna sausage," accompanied by a picture of the old farm kitchen or of the spires of Oxford or of the banks of the blue Danube. The word "style" is now insisted upon in each case. Even frankfurter and bologna had to be so modified.

It was quite common to designate lard by a name in which the word "leaf" appeared, often accompanied by a picture of a leaf, the plain inference being that the contents of the can were leaf lard. Such names and designs no longer occur unless the lard is made wholly from the leaf fat of hogs. Packages now labeled "pure lard" must be made of sweet, clean, clear hog fat, with the addition of not more than 5 per cent of lard stearin, in order that the lard may not easily melt in hot weather. "Kettle-rendered lard" must be actually so rendered, and "country lard" is no longer made in the city packing house, its place being taken by "country-style lard;" that is, lard made in the city usually, but made after the manner of the country product. Veal loaf must now be made wholly of veal. The meat-inspection law gives no control, however, over the canning of poultry or fish.

#### TANKING OF CONDEMNED MEATS.

Reference has been made to condemning carcasses and meats to the tanks. The law orders the Secretary of Agriculture to destroy for food purposes all carcasses or parts which are found unfit for food. All large establishments provide tanks for this purpose, as in this way the grease may be saved for soap and other nonedible products and the remainder for fertilizer. Tanks vary in size with the size of the establishment and its volume of business. They are of metal and extend through two or more floors of the house. From the nature of their usage they must be very strong and tight. Government employees first seal the lower opening of the tank. They then see that condemned carcasses, parts, and meat products are put in, along with offal, or coloring matter. They attend to closing and sealing the top, closing and sealing the draw-off valves, see that steam is turned into

the tank, and require it to be maintained at a certain pressure for a prescribed time. A pressure of 40 pounds is usually used. This produces a temperature of 280° F., and, maintained for eight to ten hours, is sufficient to liberate all the grease and even to disintegrate the bones. Inspectors watch also the drawing off, which is done by means of valves located at intervals along the sides of the tank, and they mark the containers in which the product is stored and shipped with the word "inedible." All possible precautions are taken to prevent this grease, some of which looks about as good as some lard, from going into trade as edible product.

#### FARMERS AND RETAIL BUTCHERS AND DEALERS EXEMPT.

Farmers living near the boundaries between States often find a market in the adjoining States for the animals they kill on the farm. Retail butchers and retail dealers similarly situated must also in the course of business send their meats across the line. To inspect at time of slaughter every farm-killed animal is impracticable, as also is an inspection and labeling of each piece of meat sent out by the retailer to his customers. The law, therefore, exempts from inspection the animals killed by the farmer on his farm and the product sent out by retailers to their customers, providing, however, that should such persons send unfit meat into interstate commerce they shall be punished by fine or imprisonment. This merely changes the manner of operation. The law here becomes retributive instead of anticipatory. Such traffic is still under the supervision of the Department, and the Department provides a form of certificate which the farmer may fill out for each shipment of meat when he presents the shipment to the carrier. It provides a similar form of certificate which the retailer is obliged to fill out and send along with his shipments across the State line, and, inasmuch as the retailer has usually a fixed place of business, it assigns him an exemption number, which must appear on the certificates. These certificates eventually reach the Washington office. The permission, or exemption, does not permit the persons to whom it is issued to ship unfit meat nor exempt them from the penalties of such action; the whole procedure is merely an effort to bring about in another way the same result—that of securing sound meat—in the business of two classes of dealers whom it seems impossible to reach by the ordinary inspection.

For these two exempted classes State abattoirs should be erected and the State should take up the work where the Federal Government leaves off. Thus the meats of farmers and retailers could be inspected by local State inspectors whose regulations should be as strict as those of the Department.

## SAFEGUARDS ON THE INSPECTION.

It thus appears that the meat-inspection law of the United States is an advanced and stringent measure, and the regulations of the Secretary of Agriculture made thereunder fully carry out the intent of the law. If, then, the regulations are enforced, our own country, as well as those countries which buy our meats, may be assured of a clean and healthy supply of this food. That the regulations are enforced is capable of demonstration by an examination of the reports of the number of animals condemned. Other safeguards, however, are provided. The law promises to fine not less than \$5,000 and to imprison for at least a year any man who gives anything of value, even a piece of meat, to a Government employee to influence him in the performance of his duties; it is stricter still with such employees, for it holds over them the menace of similar fine and imprisonment if they accept anything of value, no matter what the intent of the donor or the purpose of the gift may be. It is thus dangerous for the packer to bribe, and it is more dangerous still for the employee to accept.

The Bureau places further obstacles in the way of collusion between inspector and owner by frequent changes at the larger stations of employees from house to house, and by changes, less frequent, of employees from station to station. It is working constantly, also, to secure uniformity in the inspection at all stations. It has a very complex system of reports, and its experts scrutinize these with the view of discovering abnormalities in results and making the proper corrections. Again, practically all the operations of slaughtering and preparing meats are open to the world, and are, indeed, in the larger centers, one of the sights to which visitors flock. It is well known that accredited representatives of foreign governments, expert and otherwise, see all the processes of inspection, and more than one has satisfied himself and his government, sometimes to the surprise of both, that inspection is all that it is claimed to be. Publicists also spend days in the stock yards and packing houses, embodying the results of their observations in articles that have recently been of a more favorable tone than they were one or two years ago.

On the whole, it is submitted that no material dishonesty in the inspection can long exist, in view of the above methods and facts, and owing further to the involuntary espionage that each employee undergoes from his fellow-employees, which, while it is not depended upon by the Department, is yet a powerful factor in maintaining a strict integrity in the enforcement of the law.

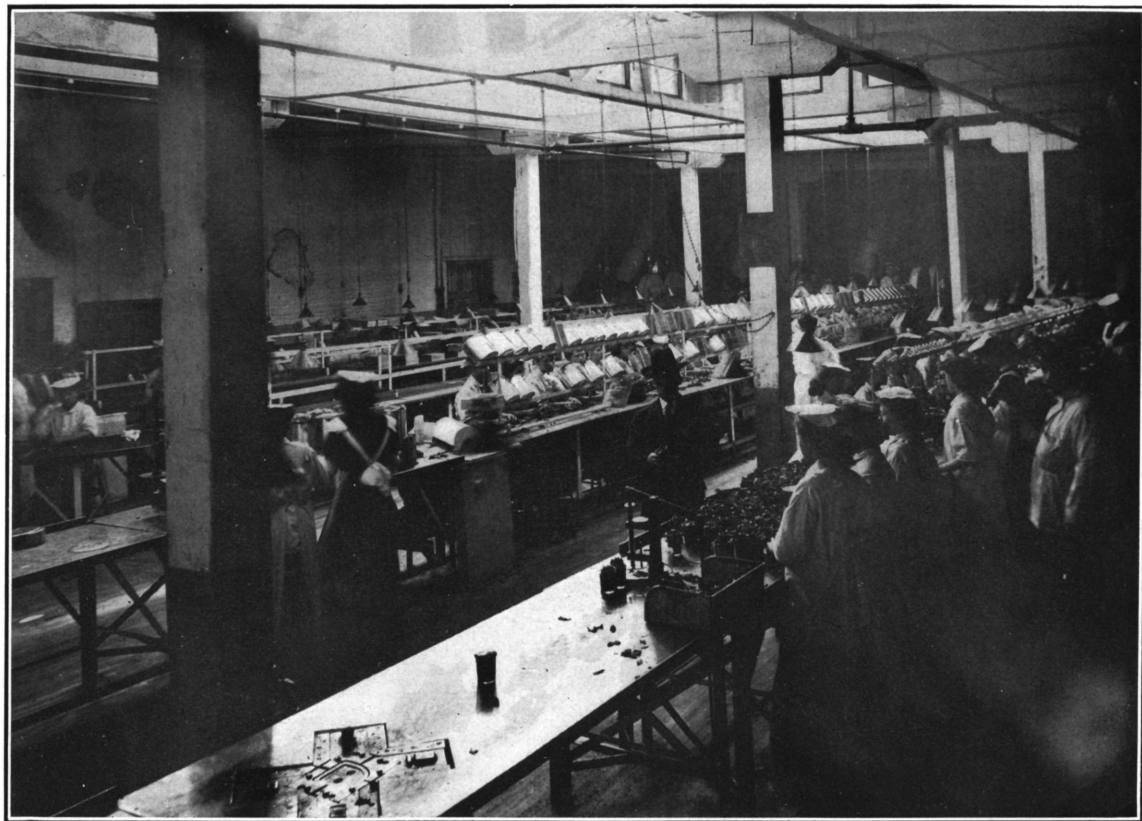


SAUSAGE-CHOPPING ROOM.

[Where sausage is prepared under supervision of Government inspectors.]



SAUSAGE-STUFFING ROOM.



PACKING CHIPPED BEEF UNDER GOVERNMENT SUPERVISION.

## PERSONNEL OF THE INSPECTION FORCE.

Whatever weight should be given to a high standard in the personnel of the inspection force must also be allowed. The Bureau's employees are both capable and expert. The men in charge of all stations where slaughtering is done, and the men who do the post-mortem work at all stations, are veterinarians. These men must first have successfully completed a three years' course in veterinary medicine at a reputable veterinary college. The Department recognizes only 14 such institutions, excluding several so-called colleges that aspire to cover this field of knowledge. The Civil Service Commission examines these graduates, and about 50 per cent of those examined make the required grade of 70.

For the relief of those who think that everything necessary to the appointment of a man in this service is a letter written to the Secretary of Agriculture by an influential citizen, it may be stated that the Department makes absolutely no permanent appointments except of men whose names are certified to it by the Civil Service Commission. During a period of six months one so appointed is on probation, and if he fails to measure up to the requirements he is dropped. If at the end of this six months he attains his absolute appointment, he is not at once freed of supervision and clothed with full authority to pass or condemn. The force is large, and he is so placed on it under experienced inspectors that he may learn the law and regulations and the methods of their application. A set of rules, supplemented, of course, by some necessary discretion on the part of the heads of the service, govern his advancement in authority and salary. On the latter men rests the burden of inspection. The Bureau holds them responsible, and they well understand that their promotion depends on efficient and faithful service. They have ample opportunity to become experts in detecting diseased animals, and they do. The Department demands all their time during the working day, and a man must be dull indeed if in the days, months, and years spent amid the swift work of the killing floors he fails to develop a most masterly dexterity in discovering abnormalities in the carcasses that come before him.

The laboratory inspectors constitute another class of employees. They also are selected through civil-service examination in the principles of bacteriology and chemistry, with special application to meats.

A third grade of employee is the inspector's assistant. Being under the direction of the veterinarian, he is not required to be himself regularly educated along this line. He examines live stock, tags animals, stamps carcasses, seals cars, patrols the houses at night, superintends the removal and tanking of condemned carcasses—in

short, he does everything he can, where expert pathological knowledge is unnecessary, to relieve and assist the veterinarian.

The meat inspector is a fourth class. He is expert in pickling, salting, smoking, and otherwise curing meat. He likewise enters the service through the civil service examinations, and his previous experience is taken into account in grading him. By means of the educated senses of sight and smell he can tell when a piece of meat is unfit, and he knows whether it is irretrievably bad or whether it can be utilized. This class of employees condemned 14,000,000 pounds of meat in the fiscal year 1906-7.

The Bureau selects certain of the most experienced veterinary inspectors and meat inspectors, divides the country into districts, and sends these men traveling through them, visiting every station and every plant. Their visits are unannounced, and they submit reports with recommendations to the Washington office. They are able, out of their wider experience, to instruct the inspectors in charge at the various stations, and their reports are of great value to the Department in its efforts to secure a uniform inspection and to learn of insanitary conditions and have them corrected.

#### THE NEED OF SUPPLEMENTING THE FEDERAL INSPECTION BY STATE OR MUNICIPAL INSPECTION.

After the Federal Government has gone to so much trouble and expense, as elaborated in the foregoing pages, to provide the citizens of this and other countries with a wholesome meat supply, it becomes the duty of the housewife and the chef to examine the meat after its receipt from the retail dealer to determine if it is still clean and wholesome, and to keep it so until ready to serve. To their assistance can come the local municipal health inspector, who should see that the markets are kept clean, and that tainted and soiled meats are condemned.

Indeed it is hoped that the foregoing description of the operation of the Federal meat-inspection law has shown its limitations and the consequent necessity that it be supplemented by State and municipal inspection. That the inspection of meats is even more necessary at the smaller than at the larger plants of the country is indicated by the comparative results of cattle inspection at these two classes of plants, as shown in the table below. The larger plants had inspection July 1, 1906, and appear in the first column. The smaller plants, coming under the inspection after July 1, appear in the second column. Both classes do an interstate business. It will be seen that relatively twice as many cattle were condemned for tuberculosis at the smaller plants, and nearly twice as many for all causes.

*Result of post-mortem inspections of cattle, July 1, 1906, to June 30, 1907.*

	At establish- ments hav- ing inspection July 1, 1906.	At establish- ments granted inspection af- ter July 1, 1906.
Total number inspected.....	7,203,943	417,774
Total number condemned.....	25,308	2,625
Per cent condemned of total inspected.....	0.35	0.62
Number condemned for tuberculosis.....	17,168	2,137
Per cent of total inspected condemned for tuberculosis.....	0.25	0.51

It may with reason be supposed that the local slaughterhouse needs inspection even more badly than the small plants now under Federal supervision. The boast of "home grown" and "home killed," formerly often heard, is empty. "Home grown" may be all right, but it is sometimes dangerous, as when the local butcher's supplies are drawn from the surrounding dairy herds, since the cattle of such herds are particularly susceptible to tuberculosis. "Home killed," however, in the absence of Federal, State, or municipal inspection, too often means that the animal is killed without scientific inspection either before or after slaughter. It may be infected with some of the most dangerous and loathsome diseases in the list and the unskilled butcher never know it. Too often, too, this phrase means that the killing is done in a small, poorly equipped slaughterhouse, without running water and without sewerage, and where the word "sanitation" is unheard and unknown.

Again, if the butcher happens to be located in a town where inspected houses are situated, or near such a town or city, it is not unreasonable to suppose that sellers having suspicious looking animals will send them to him rather than to the inspected houses where they must run the gantlet of expert examination and the risk of reaching the offal tank. More than one instance of the kind is known to the Bureau. In fact, a little reflection shows that the whole tendency of the more rigid inspection under Federal law is toward more care on the part of buyers—the refusal on their part to buy suspicious looking animals except subject to inspection—and the consequent diversion of such animals to the local abattoir that has no inspection.

#### PORK NOT EXAMINED MICROSCOPICALLY FOR TRICHINÆ.

While the Federal meat inspection in this country is as thorough as a comprehensive law, stringent regulations, and a liberal appropriation of money can make it, and the consumer of meats bearing the stamp "U. S. Inspected and Passed" may in general have the comfortable assurance that he is buying and eating products from healthy animals prepared under clean and sanitary conditions and the danger of contracting disease from eating these meats is practi-

cally eliminated, yet the fact should not be overlooked that there is one disease against which the meat inspection legend does not pretend to be a safeguard. For the detection of most of the diseases affecting meat the human eye needs no assistance. The disease called trichinosis, however, to which hogs are subject, is caused by a parasite so small that the microscope must be employed to detect it. Thorough curing or thorough cooking of the meat kills this parasite. It seems, however, that some European peoples have a habit of eating raw or half-raw pork, and consequently they have suffered from this disease. Very elaborate measures have been taken in some countries to do away with or to lessen the danger. In Germany, for instance, there is an army of inspectors who use the microscope to detect these parasites in pork. These countries some years ago forbade the importation of American pork products unless they had been microscopically inspected. To meet this requirement the Bureau instituted several years ago a system of microscopic inspection of pork intended for shipment to such countries. No microscopic inspection of pork intended for home consumption, however, has ever been made or even contemplated. The Department takes the ground that from the nature of the disease an examination of certain parts of a hog carcass can only minimize and not eliminate the danger.

The parasites, it is true, are usually found, if found at all, in certain parts, as the pillar of the diaphragm, the psoas muscle, the inner aspect of the shoulder, or the base of the tongue. Not finding them in these parts by the usual methods, it may be assumed to be probable that they do not exist in the remainder of the carcass. This is, however, only a probability, as they may exist, and even to such an extent as to produce disease if the flesh is eaten raw. Many cases are on record where twenty, even thirty, examinations were made before trichinæ were found; and out of 6,329 cases of trichinosis in Germany, between 1881 and 1898, a careful inquiry traced 2,042 cases (over 32 per cent) to meat which had been microscopically examined and passed as free from trichinæ. In view of these facts the Department has regarded it as utterly impracticable to inspect hog carcasses for this disease. It has further taken the view that such inspection—which as formerly carried on for exported products would cost about \$3,700,000 a year if all hogs killed at inspected houses were so examined—would do more harm than good. It would create in the minds of the consumers a feeling of false security, which might lead them to omit the only sure means of escaping danger, namely, to refrain from eating uncooked or uncured pork; and it would thus defeat its very purpose and render the great trouble and expense worse than useless.

Not only has the Department not inspected for trichinæ the pork consumed at home, but it has abandoned recently such inspection of

pork products going abroad. It was found that even after our elaborate examination some foreign countries, although requiring our inspection, paid no attention to our certificates, and conducted an examination of their own, on the result of which depended the admission of the products. On the ground, then, that our examination was superfluous, the Department stopped it. Of the principal countries formerly requiring certificates of this examination Italy and France already have agreed to admit our products without them, and upon the certificate simply of the regular inspection under the present law. It is hoped that other countries will take similar action.

#### MEAT INSPECTION IN EUROPEAN COUNTRIES.

Those European countries which afford markets for our surplus meats all have more or less effective and interesting systems of meat inspection. While owing to the density of population in several of these countries, and the fact that they are not economically suited to purely pastoral pursuits, it is impossible for them to grow all the meat necessary for their own consumption, yet they slaughter large numbers of animals. Of these countries England offers the most desirable market and has in fifteen years taken over half our entire exports of meats. Germany and France, in spite of repeated efforts, have been unable to supply their own demands to the extent of bringing prices within reach of the poorer classes, and present the next best market for us. In the countries named efforts toward meat inspection antedate our own by many years, for local decrees and ordinances may be found as far back as the Middle Ages; but inspection by veterinarians, on scientific principles, and under control of State or Federal governments, is comparatively new.

#### UNITED KINGDOM.

In Great Britain it was an offense punishable at common law to sell for human food unwholesome meat, knowing it to be such; but statutory provisions are now in force, embodied in separate acts for England and Wales, Scotland, Ireland, and the administrative county of London. The acts for England and Wales, for Ireland, and for London are much alike. In general they empower medical officers of health or inspectors of nuisances to examine at any reasonable time any carcass or meat on sale for human food, and any such carcass or meat that appears diseased, unsound, unwholesome, or unfit for the food of man may be seized and carried before a justice, who may condemn it and order it destroyed. This is of course not meat inspection in the modern sense of the term. The meat is not inspected at slaughter. This system results in condemning great quantities of meat, but in distinction to our own system it is retrospective rather than preventive. The Scotch public-health act is

more specific, for it provides for inspection by veterinarians, both ante-mortem and post-mortem, and inasmuch as the country is well supplied with public abattoirs under municipal ownership and control, the meat-inspection system of that country more nearly approaches our own, although without our elaborate system of marking.

#### FRANCE.

Meat inspection in France, as well as in Germany, may be divided into two periods, the first of which embraces the time when inspection of meat was merely an incident of the sanitary regulation of traffic in food products, and the second period, which is comparatively recent, when the inspection of animals and of meats intended for human food was placed under the more scientific supervision of veterinarians. In France provision for a veterinary supervision of slaughter at abattoirs was authorized in 1882. Previous to that time inspectors for public slaughterhouses generally were recruited from among butchers and other persons who had some knowledge of animals and meats. The meat-inspection service at the present time is under the general supervision of the ministry of agriculture, and under the more immediate control of the police prefectures. It is based on a series of laws, ministerial decrees, and regulations, rather than on a concrete law covering the entire subject as in the United States and Germany. The municipal authorities also issued special regulations which had as their object the total or partial seizure of unwholesome meats or the exclusion from abattoirs of animals unfit for food. Severe criticisms of the meat inspection of France have been written by eminent French authorities. Inspection in private abattoirs is not practiced generally in France, only four Departments having made any efforts in this direction, and where such inspection is in force it does not come up to the standard maintained in public abattoirs.

#### GERMANY.

The first imperial meat-inspection act in Germany was passed in June, 1900, and went into effect in its entirety in April, 1903. Previous to that time no general law governing the inspection of live stock and meats existed in the Empire. A law passed in 1879 for the regulation of traffic in food products, and also the imperial code of penal laws, contained regulations for the protection of human health from unfit meat brought into trade, but these laws simply provided for criminal procedure after the deed, and not for measures to prevent the sale of meat unfit for human food. Some individual States, especially in southern Germany, and the free cities of Hamburg, Bremen, and Lübeck, had decrees providing for inspection. The imperial meat-inspection law has made inspection

practically compulsory, although exception is made in the case of private slaughter. Notwithstanding the strict conditions of this law, which is especially enforced against foreign meats and meat food products, it is optional with the consumer whether he shall eat the meat of diseased animals, the law requiring simply that an examination shall be made and that the consumer must be notified regarding its condition, and only meat which according to the German standard can not be rendered harmless by cooking, steaming, or pickling can be condemned and destroyed. Imported meats must be inspected by an approved veterinarian. In the case of fresh meat, each individual carcass must be inspected, and when the presence of harmful preservatives is suspected it must undergo a chemical analysis. The flesh of hogs is microscopically examined to determine the presence of trichinae.

The inspection service of Germany is divided into districts, for each of which at least one veterinary inspector and one assistant inspector are appointed. In Berlin, where the largest slaughtering takes place, and which comprises one district, 63 veterinary inspectors were employed in the year 1904-5. In addition to the district veterinary inspectors there is a large force of inspectors who are not veterinarians, but who examine animals and meat and pass judgment on them when no signs of disease are manifest. In the larger districts the inspectors devote all their time to the work, but in the smaller districts the inspector is called upon to make inspections at private and other slaughter, and as a rule his time is not fully occupied. In the rural districts the meat inspector may also inspect for trichinae, while in the large districts such inspection is done by a special force of microscopists. The number of inspectors for trichinae for the whole Empire has been variously estimated at from 25,000 to 100,000. In Prussia alone, according to official statistics, there were 28,108 inspectors, and the total cost of inspection for trichinae in the Empire was estimated at \$3,275,000.

Of the meat-inspection systems of European countries that of Germany is the most elaborate. In Germany the tuberculin test shows from 25 to 40 per cent of the cattle to be tuberculous. Post-mortem examinations at some of the slaughterhouses of the Empire confirm this percentage. In the United States the tuberculin test shows from 2 to 10 per cent of the cattle to be tuberculous. The wide variation in the figures in both cases is due to the fact that different localities are differently infected. In the United States the older and more thickly populated portions of the country are as a rule the worst infected, especially those localities where there are numerous dairy herds, for this disease prevails to a very much greater extent among dairy cattle than among others. The least infected cattle are naturally those from the ranges, and the larger part of the cattle

slaughtered at the establishments under Government inspection come from these ranges.

So many different factors enter into the question that it is not possible to make a perfectly satisfactory comparison of the inspection systems of Germany and the United States. Germany, as shown, has from five to seven times as much tuberculosis in cattle as the United States. Her law runs throughout the Empire and covers the small slaughterhouses, while that of the United States applies in practice to only the better class of animals—those killed for the interstate and export trade, coming mostly from the ranges and slaughtered at the larger houses, and has no control of the insanitary local abattoir. Bearing these facts in mind, it is interesting to note that during the year ending June 30, 1907, the inspection system of the United States condemned 0.36 per cent of the cattle inspected, while that of Germany in the year 1905 (the last year for which figures are available) condemned 0.97 per cent, relatively only about three times as many; and that the United States condemned 0.33 per cent of the total number of hogs inspected as compared with 0.12 per cent condemned by Germany.

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